Facilitation versus Security

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Abstract

The aviation industry is undeniably playing a very significant role in our day-to-day life. A vast and inter-connected web of flights ensures swift passenger travel and cargo traffic. However, in the name of security, otherwise intrinsic technicalities tend now not only to hinder on further development of aviation facilitation but also take over and lead towards the exact opposite result. What are the current measures taken by the international community to streamline passenger travel? What are the new initiatives which ought to be implemented? How is the future of aviation facilitation going to look like? How is it going to affect air travel and what legal implications is it rising? Throughout this thesis we will present the legal framework applicable to aviation facilitation and discuss the main initiatives that are being considered by ICAO and IATA in this respect. While Facilitation and Security should be considered as "two faces of the same coin", in reality they appear to "compete" against each other. Hence, we will provide our arguments in support of this theory.

Résumé

L'industrie de l'aviation joue incontestablement un rôle significatif dans notre vie quotidienne. Un réseau vaste et interconnecté assure le bon déroulement du transport des passagers et du cargo. Pourtant, au nom de la sécurité, des éléments d'ordre technique tendent à entraver le développement des mesures d'amélioration des transports aériens et, en outre, risquent de conduire à des résultats tout à fait inverses à la facilitation au niveau de l'aviation. Quelles sont les mesures prises par la communauté internationale afin d'améliorer le déplacement des passagers? Quelles sont les nouvelles initiatives à cet égard? À quoi l'avenir de l'aviation ressemble-t-il? Comment va-t-il affecter le transport aérien et quelles sont les questions juridiques qui vont se poser? Dans cette thèse, nous présenterons le fondement juridique applicable au niveau de la facilitation et nous discuterons les initiatives de l'OACI et de l'IATA à ce sujet. Alors que la facilitation et la sécurité devraient être considérées comme fonctionnant l'une avec l'autre, ces deux éléments entrent en réalité en concurrence. Nous exposerons ci-après nos arguments au soutien de cette théorie.

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1. Introduction

In the time it took to read the abstract of this paper[1], 60 aircraft took off all over the world. The hull value at risk of those aircraft at take-off approximated 1.5 billion US dollars. Well over 3300 passengers were already in the air, and billions of dollars were at risk for passenger and third party liability exposure.

Objective measures prove that air travel is one of the safest modes of transport and has achieved significant reductions in the number of accidents in recent decades[2]. For example, figures released by the National Transportation and Safety Board show an 8% drop in civil aviation accidents in the US last year, to 1,715 from 1,864 in 2003[3].

1.1 Economic Impact

With an estimated of 10,000 aircraft in the air at any given time[4], the airline industry is one of the most active businesses in the world[5]. There are currently an estimated 215,000 aircraft in service for commercial aviation worldwide; while

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[1] Philip Chrystal, Marcel Fok, Ferdinando Martino, Shinji Shirai, Andreas F. Peter, *The true value of aviation insurance*, Swiss Re Publications 10/2004, 18.

[2] Although for the past twenty years the number of casualties in commercial aviation continues to stay in the range of 1000 per year, at the same time the number of flights and passengers increased by roughly 50% over the same interval. Therefore we can conclude that, in absolute figures, the number of casualties 'dropped' instead. Marion Geoffroy, *La sécurité du transport aérien européen: aspects institutionnels et juridiques*, LL.M. Thesis Institute of Air and Space Law, McGill University, 2000, 44.

[3] See also http://www.cnn.com/2005/TRAVEL/03/30/aviation.accidents.ap/ last accessed on April 6, 2005.

[4] Piera J., Alejandro. *Automation in Facilitation of Air Transport* (LL.M. Thesis, Institute of Air and Space Law, McGill University, August 2000) 1.

[5] International air passenger traffic was up 9.4% in 2004, according to Airwise News online (http://news.airwise.com/story/view/1114681541.html, last accessed on May 16, 2005).

another over 200,000 aircraft are in use for general aviation[6]. For the approximately 21,400 Western-built aircraft in use alone, the hull insured value amounts to over 570 billion dollars[7].

Over 1.8 billion people used the world's airlines for business or leisure travel over the last year[8]. By 2010, this number could exceed 2.3 billion[9]. Among those 1.8 billion passengers, a record 105 million passengers worldwide boarded via IT applications and facilities[10] developed by SITA.[11]

In Europe alone, the air transport industry involves over 130 airlines, along through a network of over 450 airports and 60 air navigation service providers.

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[6] General Aviation Overview online http://www.aopa.org/special/newsroom/facts.html last accessed on March 27, 2005. Some opinions offer an even more 'generous' figure for number of general aviation (GA) aircraft in use – 400000 (Philip J. Kolczynski, *General aviation air crash, manufacturer immunity?* online at http://www.aviationlawcorp.com/content/gaiimune.html last accessed on May 16, 2005).

[7] *See* note 1, *supra*.

[8] The Economist Executive Briefing, *New technologies promise to make air travel smoother for passengers and cut costs for beleaguered airlines*, March 11, 2005, online at http://db.eiu.com/index.asp?layout=articleAv&doc_id=dms748120874&eiu_geography_id=&publication_type_id=&search=biometrics&date_restrict=&hits=25&starting last accessed on April 18, 2005.

[9] IATA web site http://www.iata.org/pressroom/industry_stats/2003-04-10-01.htm last accessed on March 19, 2005.

[10] Figures from a SITA report - Royal Aeronautical Society, Aerospace International, Vol. 32 no. 3 March 2005, 12.

[11] SITA is the world leader in providing information technology and telecommunications solutions to the air transport and related industries. Originally "*Société Internationale de Télécommunications Aéronautiques*", the Geneva-based organization uses today the SITA acronym which became self-explanatory. For further information please see SITA's web site at http://www.sita.aero/News_Centre/Corporate_profile/default.htm last accessed on April 6, 2005.

The demand for air travel in Europe increased three-fold between 1980 and 2000, and is set to double by 2020[12].

Over 40% of world trade of goods (by value) is carried by air[13]. Breakneck economic growth in the People's Republic of China has fueled expansion of the air cargo market- China's exports were valued at $851 billion in 2003 [14]. Between January and October 2004 alone, the International Air Transport Association[15] airlines "reported that international FTK [solid traffic growth] rose 14%, with double-digit increases recorded across all regions" [16].

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[12] The International Air Transport Association, [hereinafter *IATA*]. IATA web site http://www.iata.org/pressroom/industry_stats/2003-04-10-01.htm last accessed on March 19, 2005. "The combined direct, indirect and induced employment created at European airports is 4,000 jobs per million passengers served. The location of an airport creates an economic ripple effect, attracting other industries and business activities, and secondary support functions. Aviation is directly linked to the tourism industry in Europe, generating receipts of 700 million Euros per day, and creating considerable employment in the aircraft and engine manufacturing industries, and related activities."

[13] *Ibid.*

[14] "Airfreight demand is driven by global GDP growth, which exceeded 2% in both 2002 and 2003. Early last fall, the International Monetary Fund raised its 2004 global growth forecast to 5% while for 2005 it lowered it to 4.3%, largely reflecting the effects of higher energy costs (which have abated since the forecast was issued). For most of Asia including China, growth will be well ahead of the world average. In early December internal forecasts for China estimated GDP growth last year hit 9%." Perry Flint, *Air Transport World*, January 2005, 42 at http://www.atwonline.com/channels/dataAirlineEconomics/article.html?articleID=1143 last accessed on March 19, 2005.

[15] IATA became over the past couple of years a very aggressive lobbyist. Born in 1945, at the beginning of commercial aviation and in the wake of World War II, IATA represented for decades an airline club that fixed routes and fares. IATA's role has evolved considerably over the past few years and the organization's name today is the synonym of highly competent and competitive services provided to its members. IATA's voice is today heard loud and clear each time its member airlines' interests are at stake, as it happened for instance on April 4 in New York, where IATA's CEO, Mr. Bisignani, pleaded for governments to take responsibility and actually pay for the security measures imposed, instead of passing on the cost to airlines and ultimately to passengers. See also *World's airlines to lose $5.5B US this year (2005 – emphasis added AGC): IATA* at http://www.cbc.ca/story/business/national/2005/04/04/airlines-050404.html last accessed on April 6, 2005.

[16] Perry Flint, *Air Transport World*, January 2005, 42 online at http://www.atwonline.com/channels/dataAirlineEconomics/article.html?articleID=1143 last accessed on March 19, 2005.

Europe's air transport system alone carried over 307 million passengers and 35 billion tons/km of freight last year, and contributed approximately EUR 500 billion, in different ways, to the total European GDP[17]. Air transport is "a big employer in Europe, directly or indirectly accounting for roughly 3 million staff"[18].

Today, the air transport became the "backbone of global tourism". Air travelers on the other hand are some of the most highly taxed consumers in the world. Nowadays, air travel no longer represents an exclusive club-type of transport, but rather a commodity that is freely traded by over 1.8 billion people who fly each year.

1.2 Manufacturers and Environmental Concerns

There are two main civilian aircraft manufacturers: Airbus and Boeing. As Airbus has launched its A380[19] at the beginning of this year, Boeing followed suit by unveiling its own long-range airplane, the 777-200LR Worldliner. The latest variant of the B777 is able to fly up to 9,420nm[20] (or 17500 km), to connect any two cities in the world with one non-stop flight. In addition, Boeing's soon-to-be-

[17] These figures and much more can be found on the EUROCONTROL web site, at http://www.eurocontrol.int/corporate/public/standard_page/cb_society_and_economics.html last accessed on March 19, 2005.

[18] *Ibid.*

[19] For more information about this type of aircraft please see online http://www.airbus.com/product/a380_backgrounder.asp last accessed on April 5, 2005.

[20] Royal Aeronautical Society, Aerospace International, Vol. 32 no. 3 March 2005, 5.

introduced B787 Dreamliner is set to have record-low fuel consumption in its class, with excellent environmental performance[21].

Manufacturers are taking measures to reduce noise pollution. State-of-the-art aircraft produce 75% less noise (20 decibels less) than the first commercial jets put into service in the 1960s[22]. A further reduction of 6 decibels is the target for 2010, while "a longer-term goal of a 10 dB reduction per aircraft operation is expected for 2020"[23].

Today's aircraft are "70% more fuel-efficient than the jets of the 1960s (e.g. 3.5 liters per 100 passenger-kilometers, which is more efficient than many forms of transport)", with research efforts aiming "to achieve further reductions of 20% in carbon dioxide (CO2) and 60% in nitrogen oxide (NOx) emissions, for new aircraft engines in 2008" [24]. Longer-term goals include achieving a "50% cut in CO2 emissions per passenger-km and an 80% cut in NOx emissions for equipment entering service in 2020" [25].

1.3 Tourism

Tourism is undoubtedly the most important beneficiary of air transport. A key issue here is "[t]he expedited flow of passengers through airports [...],

[21] For additional information about the performance of this plane please see http://www.boeing.com/commercial/7e7/background.html last accessed on April 21, 2005.

[22] IATA web site http://www.iata.org/pressroom/industry_stats/2003-04-10-01.htm last accessed on March 19, 2005.

[23] *Ibid.*

[24] *Ibid.*

[25] *Ibid.*

especially as the treatment which tourists receive at the airport is usually the first and last memories they have of their visit to a country"[26].

The World Tourism Organization, among other organizations, "is concerned at the negative effects that new or extended security measures following the events of 11 September 2001 are having on the cost of air transport, the flow of passengers and the public perception of the ease of travel"[27].

ICAO has braced itself to

"- ensure that security measures are implemented in a most cost-effective way in order to avoid undue burden on civil aviation;

- ensure to the extent possible that security measures do not disrupt or impede the flow of passengers, freight, mail or aircraft;

- ensure that security measures are implemented in a manner which is objective and non-discriminatory on the base of gender, race, religion, or nationality;

...

- restore public confidence in air travel and revitalize the air transport industry."[28]

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[26] Facilitation (FAL) Division – Twelfth Session - ICAO DOC FAL/12-WP/25, 30/0/04, 2.

[27] *Ibid.*

[28] *Ibid.*

Summary

Aviation is a highly volatile business, in which fundamentally irrational levels of public preoccupation with safety and security can threaten the economic viability of a critical industry.

Our dissertation analyzes the facilitation – security relationship. We focus on some of the concerns that passengers and the civil society are expressing nowadays vis-à-vis their privacy, and how this matter becomes relevant when talking about facilitation and security.

First, we aim to familiarize the reader with the organization of the facilitation, the 'jargon' and the technical issues which play an important role in understanding how the facilitation system actually works. These are critical elements which we found essential to be presented first. We will then introduce the changes in security and facilitation subsequent to the 9/11 terrorist attack in the United States. We will analyze the issue of privacy and the impact of the above mentioned changes in relation to privacy. We will finally tackle blacklisting and the "no-fly" list to provide the reader with background as well as up to date information as for what these terms translate into in real life situations.

We will conclude with a major development which occurred earlier this year and which we found to be an eloquent and self-explanatory closing, pertinent to our topic.

Consequently, the structure of this thesis is as follows:

- ➔ Chapter 2 of this thesis we will give an overview of the facilitation regime;
- ➔ Chapter 3 is a summary description of the existing automating systems, followed by a critical evaluation of them from a facilitation/security perspective;
- ➔ We will then analyze the thorny issue of balancing the need for facilitation with the need for security (Chapter 4);
- ➔ In the end, we will draw our conclusions based on our observations presented in the previous chapters (Chapter 5).

2. Organization of Facilitation

The objective in this chapter is to describe the regulatory basis, scope and application of facilitation and discuss facilitation enhancement measures. We will start by offering a summary of what facilitation means and continue by breaking down the regulatory framework applicable to aviation facilitation. We will briefly present the Airport Facilitation Program and the National Facilitation Program, as important components of the facilitation organization, involving key performers in the implementation phase.

2.1 Facilitation – overview

Facilitation encompasses: (i) border control procedures; (ii) systems automation and integration; (iii) aircraft disinfection; (iv) special assistance to passengers; (v) international signage and (vi) taxation.

Facilitation aims to ensure swift and efficient border control, as well as accessible and safe facilities and services[29].

Today, there are increasing concerns about losing some of the speed advantage in aviation. This is partly due to the configuration of transport system, congestion in regional air traffic, and increased distances to airports from urban areas. It is also partly due to lengthy control procedures put in place to enhance security.

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[29] Facilitation in international aviation "reflects the attempt by the international community to eliminate barriers of any kinds, by eliminating, as far as possible, all form of restrictions and formalities that would make a journey by air time consuming, tedious and counter-productive" – R. I. R. Abeyratne, *The development of the machine readable passport and visa and the legal rights of the data subject*, Ann. of Air & Sp. L. (1992), Vol. XVII part II, McGill University, 1.

2.2 Regulatory framework

Facilitation measures are governed by two main international documents namely: the Chicago Convention of 1944[30] and Annex 9 to the Chicago Convention[31].

2.2.1 ICAO[32] – Chicago Convention[33]

The Chicago Convention was signed on December 7, 1944 and entered into force on April 4, 1947, in accordance to Article 91(b). It represented a major step forward, an incredible achievement for the year 1944, as World War II was then raging.

Article 10 of the Chicago Convention provides that "[...] every aircraft which enters the territory of a contracting State shall [...] land at an airport designated by that State for the purposes of customs and other examination [...]"; similar provisions apply "[o]n departure from the territory of a contracting State".

The drafters of the Chicago Convention clearly established the full and unfettered right of each signatory state to legislate and implement the *de iure*

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[30] *Infra*, note 33.

[31] *Infra*, note 37.

[32] The International Civil Aviation Organization, [hereinafter *ICAO*]. For a study on the ICAO functions please see J. Ducrest, *Legislative and quasi-legislative functions of ICAO: towards improved efficiency*, XX:I Ann. Air & Sp. L. (1995), 343 - 354.

[33] See Convention on the International Civil Aviation, 7 December 1944, ICAO Doc. 7300/6, [hereinafter *Chicago Convention*].

provisions that govern the admission and departure of passengers, crew and cargo. Article 13[34] of the Chicago Convention states that:

> "The laws and regulations of a contracting State as to admission or departure from its territory of passengers, crew or cargo of aircraft, such as regulations to entry, clearance, immigration, passports, customs and quarantine shall be complied with by or on behalf of such passengers, crew or cargo upon entrance into or departure from, or while within the territory of the State."

Article 14 imposes an obligation on every contracting state to take effective measures to prevent the spread of communicable diseases by air navigation[35]. Again, individual signatory states decide on their own measures.

Chapter IV (Articles 22 to 28) of the Chicago Convention deals directly with measures to facilitate air navigation. According to Article 22:

> "Each contracting State agrees to adopt all practicable measures [...] to facilitate and expedite navigation by aircraft between the territories of contracting States, and to prevent unnecessary delays to aircraft, crews, passengers and cargo, especially in the

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[34] Entry and clearance regulations, Article 13 of the Chicago Convention, 7 December 1944, ICAO Doc. 7300/6.

[35] Article 14 of the Chicago Convention provides that:

> "Each contracting State agrees to take effective measures to prevent the spread by means of air navigation of cholera, typhus (epidemic), smallpox, yellow fever, plague, and such other communicable diseases the contracting State shall from time to time decide to designate, and to that end contracting States will keep in close consultation with the agencies concerned with international regulations relating to sanitary measures applicable to aircraft."

administration of the laws relating to immigration, quarantine, customs and clearance."

Article 23 reiterates the undertaking on the part of the signatories to the Chicago Convention to adjust their customs and border control procedures to ICAO standards, on a continuous basis.[36]

2.2.2 ICAO – Annex 9 of the Chicago Convention[37]

States' obligations are published in Annex 9 of the Chicago Convention, which defines Standards[38] and Recommended Practices[39] to facilitate the movement of aircraft, individuals and baggage, as well as merchandise and other goods.

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[36] Article 23 of the Chicago Convention stipulates that:

> "Each contracting State undertakes, as far as it may find practicable, to establish customs and immigration procedures affecting international air navigation in accordance with the practices which may be established or recommended from time to time, pursuant to [the Chicago] Convention."

[37] The Annex 9 of the Chicago Convention of 1949 sets the Standards and the Recommended Practices on Facilitation. It was first adopted on March 25, 1945 and became effective on September 1st, 1949, [hereinafter *Annex 9*].

[38] "Standards" means:

> "[...] any specification, the uniform observance of which has been recognized as practicable and as necessary to facilitate and improve some aspects of international air navigation, which has been adopted by the [ICAO] Council pursuant to Article 54 (l) of the [Chicago] Convention, and in respect of which non-compliance must be notified by States to the [ICAO] Council in accordance with are. 37 [of the Chicago Convention]" – Foreword – General Information – Annex 9.

[39] By "recommended practices" we should understand:

> "[...] any specification, the observance of which has been recognized as generally practicable and as highly desirable to facilitate and improve some aspect of international air navigation, which has been adopted by the [ICAO] Council pursuant art. 54 (l) of the [Chicago] Convention, and to which Contracting States will endeavor to conform in accordance with the [Chicago] Convention" – Foreword – General Information, Annex 9.

States are required[40] to notify ICAO regarding any differences between their national regulations and the respective practices contained in the Annexes to the Chicago Convention[41]. While states must comply with "Standards" and notify ICAO of any non-compliance with their provisions, they are only held to a reasonable efforts standard when it comes to "Recommended Practices".

First adopted by the ICAO Council in 1947, Annex 9 to the Chicago Convention has been successively modified over the years. The most recent edition (in force), the 11th, dates to July 15, 2002.

The Cairo meeting of the ICAO Facilitation Division in 2004, lead to the drafting of the 12th edition. Sources in ICAO indicated that it is unlikely that a qualified majority of signatory states will reject the modifications. Thus, the 12th edition[42] of Annex 9 is anticipated to come into effect as of July 11, 2005, remaining to be applicable three months later, period within which states may file

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[40] Article 38 of the Chicago Convention imposes an obligation on the state which is departing from the adopted international standards and procedures to immediately notify the ICAO Council, which in return will communicate such differences to the rest of the ICAO member states.

[41] While "the international standards are not devoided of legal significance" – pursuant to Article 37 of the Chicago Convention "States have accepted an international obligation to collaborate in securing the highest practicable degree of uniformity", obligation which "must be fulfilled in good faith" – one may still raise the question whether "ICAO standards and recommended practices have any force of law at all, in the view of the fact that a majority of States can 'disapprove' of the standards, that each State is obliged to comply only 'to the highest practicable degree' and that the States have the right (and duty) to file differences between their national practices and the international standards." Michael Milde, *Aviation safety oversight: audits and the law*, Ann. of Air & Sp. L., Vol. XXIV, McGill University (2001), 168-169.

[42] Considering the 12th edition of the Annex 9 to the Chicago Convention is not yet in force, we will refer to it as "Text of the Amendment 19 to the International Standards and Recommended Practices – Facilitation", [hereinafter *Amendment 19*].

"disapproval" of its provisions[43]. The following analysis of Annex 9 will therefore compare the current provisions with the new ones.

Technically, the Annexes to the Chicago Convention, including Annex 9, are not *per se* part of the Chicago Convention itself. As such, they are independently subject to acceptance by states as compulsory provisions. Annex 9 represents one means that the drafters of the Convention set up to facilitate changes to the rules implementing the Convention, without needing to resort to the complex amending formula set out in Article 94 of the Chicago Convention.

Article 94 requires a qualified majority of two thirds of the *total number of contracting states* for modification of the Chicago Convention proper. According to Article 54 (l) and Article 90 (a), a qualified majority of two thirds of the *members of the Council* is required to adopt the Annexes to Chicago Convention, including any modifications thereto.

Facilitation measures fall under the sovereignty principle. As a result, individual signatory states take such actions, as they deem appropriate. The result tends to be a myriad of information and processing systems, systems that are not necessarily compatible with one another insofar as exchange of information is concerned. One result is that there are more differences filed to the Annex 9 than to any of the other 17 Annexes to the Chicago Convention.

ICAO's original goals[44] concerning facilitation were "to achieve, to the maximum degree consistent with the public interest, free and unimpeded

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[43] See Article 90 of the Chicago Convention.

[44] See also R.I.R. Abeyratne, *Facilitation and the ICAO role – a prologue to the nineties*, Vol. XV Ann. Air & Sp. L. (1990), 3-8.

passage of aircraft and crews, passengers, baggage, cargo and mail that they carry on international flights". ICAO can only accomplish this aim if signatory states adopt simplified and uniform procedures, and amend to regulations that whose implementation delays or restricts the movement of international traffic, alongside continuing efforts on the part of airport authorities and operators of international flights to reduce ground delays to a minimum[45].

One laudable ICAO objective for its facilitation program is to have all departure formalities completed within **60** minutes from the time a passenger presents him/herself at the first processing point at the airport[46], for all passengers requiring no more than normal inspection on international air transport services. For incoming passengers, ICAO targets **45** minutes for disembarking clearance, regardless of the size of the aircraft or the time of arrival[47].

2.2.2.1 Entry and departure of aircraft

Signatory states to the Chicago Convention must adopt and implement "appropriate measures for the clearance of aircraft arriving or departing" from

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[45] ICAO, Aims and Objectives of ICAO in the field of Facilitation, ICAO Doc. 7891-C/908, cited in B. Cheng, *Studies in International Space Law* (Oxford: Clarendon Press 1997) 51.

[46] See recommended practice 3.28, Annex 9. See also recommended practice 2.42 of the Annex 9 (Facilitation) to the Convention on the International Civil Aviation, Text of the Amendment 19 to the International Standards and Recommended Practices – Facilitation.

[47] *Supra*, note 4 at 14.

their territory "in such a manner as to prevent unnecessary delays"[48], subject to narcotics control measures, where appropriate[49].

Insofar as documents required for entry and departure of aircraft are concerned, Annex 9 requires states to have a flexible and clear policy, one that does not create requests for any documents other than those mentioned in the Annex 9, and which provides for the acceptance of those documents in electronic form, paper form, or paper form completed manually[50]. It is important to note that these provisions create a legal framework for electronic data interchange (EDI)[51] clearance of passengers and cargo[52].

Although it applies only to general aviation and other non-scheduled flights, Article 2.37 (a Recommended Practice) is an interesting provision in the current context of transatlantic concerns over security.

According to recommended practice 2.37:

> "In case of aircraft engaged in carriage of passengers, cargo or mail for remuneration or hire, Contracting States should not require more than the following details in application for prior authorization [for aircraft landing]:
>
> a) name of operator;

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[48] Annex 9, standard 2.1.

[49] *Ibid.*, standard 2.2.

[50] *Ibid.*, standards 2.8 and 2.9.

[51] *Infra*, 38.

[52] See also *supra*, note 4 at 9.

b) type of aircraft and registration marks;

c) date and time of arrival at, and departure from, the airport concerned;

d) place or places of embarkation or disembarkation abroad, as the case may be, of passengers and/or freight;

e) purpose of flight and number of passengers and/or nature and amount of freight; and

f) name, address and business of charterer, if any."

This limited information is required a minimum of two hours ahead of the arrival of the aircraft at the destination airport. Some authorities require much more data to be provided 15 minutes after the departure of the aircraft when commercial aviation flights are concerned[53].

The health provisions of the Chicago Convention set out that suspension of air transportation services for health reasons[54] should be undertaken by states only in accordance with the International Health Regulations of the World Health Organization (WHO) and should constitute the last option among a range of solutions[55].

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[53] *Infra*, 88.

[54] For a study on the health provisions of the Chicago Convention and their impact on facilitation please see Poget Gael, *Legal aspects of facilitation in civil aviation: health issues* (LL.M. Thesis, Institute of Air and Space Law, McGill University, August 2003), 29-55.

[55] Annex 9, recommended practice 2.4.

Specific provisions and limitations are set out for extermination of insects[56] and disinfection[57] of aircraft, as well as the measures and products to be used. Such procedures are to be carried out expeditiously, and under no circumstances are chemicals that can damage the health of passengers or the structure of the aircraft to be used.

2.2.2.2 Entry and departure of persons and their baggage

Chapter 3 of Annex 9 deals with "entry and departure of persons and their baggage".

Amendment 19 to Annex 9 is the first measure to add provisions on "biometric data" and "travel documents"[58]. The articles covering generally required travel documents, and passports in particular, have seen major modification.

The new Standard 3.4 expressly stipulates that "Contracting States shall not extend the validity of their machine readable **travel documents** [*emphasis added*]" and that "States whose national legislation or regulations currently allow for the extension of the period of validity should undertake to amend the appropriate text" as soon as possible.

The change in terminology from "passports" to "travel documents" acknowledges recent changes, such as increased free movement of persons in

[56] Annex 9, standards 2.22 to 2.29.

[57] *Ibid.*, standard 2.30.

[58] Instead of "passports".

some regions, such as the European Union. Amendment 19 has incorporated a completely new Section C governing the "security of travel documents". States now bear an obligation to "regularly update security features in the new versions of their travel documents, to guard against their misuse and to facilitate detection of cases where such documents have been unlawfully altered, replicated or issued"[59].

The proposed Recommended Practice 3.9 expressly mentions biometric data to be included in machine-readable travel documents, and suggests the type of biometric data to be contained in an integrated circuit chip[60].

The proposed Standard 3.10 is another unprecedented amendment. Standard 3.10 indicates, "contracting states shall begin issuing Machine Readable Passports in accordance with the [ICAO] specifications no later than 1 April 2010". Proposed Standard 3.10.1 stipulates "for passports issued after 24 November 2005 and which are not machine readable, Contracting States shall ensure the expiration date falls before 24 November 2015". These provisions have encountered heavy resistance from some African countries that would have

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[59] Amendment 19, standard 3.7.

[60] *Ibid.*, recommended practice 3.9:

> "Contracting Stated should incorporate biometric data in their machine readable passports, visas and other travel documents, using one or more optional data storage technologies to supplement the machine readable zone, as specified in Doc. 9303, Machine Readable Travel Documents. The required data stored on the integrated chip is the same as that printed on the data page, that is, the data contained in the machine-readable zone plus the digitized photographic image. Fingerprint image(s) and/or iris image(s) are optional biometrics for Contracting States wishing to supplement the facial image with another biometric in the passport. Contracting States incorporating biometric data in their Machine Readable Passports are to store the data in a contactless integrated circuit chip complying with ISO/IEC 14443 and programmed according to the Logical Data Structure as specified by ICAO."

preferred to add another ten years until such technological modifications become a universal standard.

The visa waiver initiative, under which states would no longer require visas *in rem*, will remain a *desideratum* for the generations to come. The current Recommended Practice 3.14 (re-numbered 3.19 under Amendment 19) does state that "Contracting State should waive or abolish [...] the requirement for an entry visa for nationals [of other States] seeking entry as visitors". However, such an improvement is unlikely in the lifetime of the author, let alone in the near future[61].

Embarkation/disembarkation cards[62], where applicable, will remain to be distributed free of charge via the airline operators, travel agents or airport authorities. While such means of supplementary control may represent an additional factor hampering facilitation, it remains entirely within the discretion of individual Contracting States whether such cards are to be used.

Amendment 19 retained the aim of a one-hour maximum for departure procedures[63] as a Recommended Practice. Recommended Practice 3.31 of

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[61] The only quasi-exception to the visa requirement is represented by the waiver the contracting states should give to "arriving crew members presenting [a valid Crew Member Certificate, when arriving in a duty status on an international flight and seeking temporary entry for the period allowed by the receiving State in order to join their next assigned flight in a duty status" (Amendment 19, standard 3.71).

[62] The personal information collected through these embarkation/disembarkation cards is mentioned in the Appendix 5 to Annex 9, more specifically: name, date of birth, nationality, travel document details, port of embarkation or disembarkation, other specific data required by the respective state.

[63] Annex 9, recommended practice 3.28 Note.

> *"Required departure formalities" to be completed during the 60 minutes would include airline check-in, aviation security measures and, where appropriate, the collection of*

Annex 9 also retains the goal of 45 minutes to clear passengers for disembarkation, assuming normal inspection, regardless of the size of the aircraft and its arrival time.

A multi-channel system should be in place at airports for immigration[64], customs and quarantine purposes[65]. This can involve nothing more complex than several "lanes" in place to hasten border clearance procedures for landed passengers.

Standard 3.52.1 of Annex 9 (standard 3.43, Amendment 19) places "custody and care of [disembarking] passengers and crew [members] from the moment they leave the aircraft" in the responsibility of the aircraft operator until those passengers are accepted to complete the border procedures[66].

2.2.2.2.1 EDI and Advance Passenger Information Systems

Given the resistance of various Signatory States (notably, African states) to the early introduction of Machine Readable Passports, it is perhaps understandable that the amendments left the introduction of advance passenger information (API) systems entirely to the discretion of individual signatory states.

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airport charges and other levies, and out-bound border control measures, e.g. passport, quarantine or customs control.

[64] *Ibid.*, recommended practice 3.33.

[65] *Ibid.,* standard 3.37, unchanged.

[66] The moment the operator is relieved of his obligations is when the passenger of crew member "makes his first appearance at the arrivals control point after disembarkation, to seek entry into the country concerned, at which time the control officer makes a decision whether he should be admitted or not". It is important to note that such "examination" does ***not*** encompass the "sighting of travel documents, which may be carried out immediately upon disembarkation". Amendment 19, standard 3.42 Note (former standard 3.52.1 Note).

API systems expedite passenger processing through "the capture of certain passport or visa details prior to departure, the transmission of the details by electronic means to their public authorities, and the analysis of such data for risk management purposes prior to the arrival"[67]. Wealthier signatory states might find it in their economic interests to subsidize the introduction and adoption of machine-readable passports and API systems on the part of less economically developed countries.[68]

The type of data required should be restricted to the "elements that are available in machine readable form in travel documents"[69].

Where an API system is in place, Recommended Practice 3.47.2 of Amendment 19 requires that no fines to be applied to operators for system errors that may have corrupted the data transmitted to the public authorities. Supposedly, any such data transmitted must meet the specifications for UN/EDIFACT PAXLST[70] messages[71]. In fact, as of April 10, 2005, two formats

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[67] *Ibid.*, recommended practice 3.34, unchanged.

[68] The potential savings due to more efficient enforcement of immigration laws, as well as controls on forgery and fraudulent use of travel documents, come to mind. *See* section **3.3.4** *infra.* API systems could generate a massive range of collateral benefits— in fields as diverse as interdicting transnational organized crime and epidemiological data tracking.

[69] Amendment 19, recommended practice 3.47.1.

[70] See United Nations Directories for Electronic Data Interchange for Administration, Commerce and Transport http://www.unece.org/trade/untdid/d04b/trmd/paxlst_c.htm last accessed on April 10, 2005. See also "*Standards and Type B*" online at http://www.sita.com/News_Centre/Publications/Solutions_at_sita_Q1_2004/Features/Same_principles_better+system-Advance_Passenger_Information.htm last accessed on April 10, 2005:

> "Although the intention is that APIS [Advances Passenger Information System] data is sent in conformity with UN/EDIFACT PAXLST message formats, in reality two main standards are used - US/EDIFACT and UN/EDIFACT. There are also sub-versions and variants. Most data is transmitted using Type B, the standard that is unique to the air transport industry. Distribution via Web and/or e-mail is necessary where usage of Type

are used: UN/EDIFACT and US/EDIFACT. Further complicating this picture is the fact that there are sub-versions and variants of both these versions. Most data is transmitted using Type B, a standard unique to the air transport industry. The rather intractable problem that currently affects API is that current arrangements require multiple interfaces between any given airline and each government agency involved. This situation increases the cost burden of API for the airlines. The choice to leave the introduction of API to the discretion of individual states raises the specter of multiplying the problem of multiple interfaces and incompatible (or under-compatible) data transmission standards by an order of magnitude. Various Signatory States and sub-state units (regional or provincial governments and individual agencies/ministries) may well adopt mutually incompatible standards, and the variety of natural languages used for data storage may further complicate matters.[72]

A new provision, Recommended Practice 3.48, stipulates, "contracting states requiring *Passenger Name Record (PNR)*[73] access should conform their data requirements and their handling of such data to guidelines developed by ICAO".

B is not possible, or where the alternative is facsimile (which cannot be processed and checked against databases). Crucially from an airline standpoint, current arrangements require multiple interfaces between the airline and each government agency - imposing an unwelcome burden on carriers' intent on squeezing every non-productive cost from the system."

[71] Amendment 19, recommended practice 3.47.2.

[72] Consider, for example, the complexity involved in integrating data, from a People`s Republic of China database and entered in Simplified Mandarin using a given standard, into a U.S. Department of Homeland Security database compiled in English.

[73] See also *supra,* 41-42.

2.2.2.3 Entry and departure of cargo and other articles

Amendment 19 did not change the provisions of Chapter 4 of Annex 9. The standards and recommended practices in Chapter 4 stress the need to facilitate the release and clearance of goods, as well as to simplify cargo documentation.

2.2.2.4 Inadmissible persons[74] and deportees

At the Cairo meeting in 2004, Signatory States convened to increase international cooperation and facilitate the transfer of inadmissible persons[75]. The result was new provisions added to the "inadmissible persons" section of Annex 9, under a new Chapter 5.

An inadmissible person is a passenger whom the public authorities of a Signatory State deny entry into that state[76]. Standard 5.2 acknowledges that inadmissible persons must be treated in a manner that preserves their dignity[77].

Standards 5.6 and following specify the documents that must accompany an inadmissible person (e.g. a covering letter)[78], and the procedure for both the Contracting States and the aircraft operator to follow.

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[74] *Per a contrario*, an inadmissible person is someone whom the public authorities of a state denied entry into that state (Amendment 19, standards 5.3 and 3.44).

[75] Amendment 19, standards 5.1 and 5.2.

[76] A range of reasons may make an individual inadmissible, depending on the laws and policies of the state in question—national security, public health grounds, and immigration laws are typical reasons.

[77] Amendment 19, standard 5.2.

The aircraft operator is responsible for the cost associated with the custody of an inadmissible person, as of the moment the person was declared inadmissible by the competent authorities of the state in question, until that person is returned to the operator, in order to be removed from the territory of that state[79]. A due-diligence clause exonerates the operator from this liability, to the extent that the document problems were beyond the expertise[80] of the operator to detect, if the operator has "taken adequate precautions to ensure that these persons had complied with the documentary requirements for entry into the receiving State"[81]. Given the volume of international passenger travel, on one hand, and the ease with which various nations passports can be forged or fraudulently obtained on the other hand, both this liability and the due diligence are of considerable economic importance.

Standards 5.17 to 5.24 of Amendment 19 deal with deportees. They replace and enhance the legal framework provided in the previous standards 3.66 through 3.71 of Annex 9.

2.2.2.5 International airports – facilities and services for air traffic

There is a clear need to cope with the increase in the number of passengers and the volume of cargo, while at the same time applying

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[78] These documents are considered sufficient in order to carry out the examination of the person concerned (Amendment 19, standard 5.13).

[79] *Ibid.*, standard 5.9, modifying standard 3.52.2 of Annex 9.

[80] *Ibid.*, standard 5.9bis.

[81] *Ibid.*, standard 5.14.

appropriate security measures[82], particularly regarding narcotics and psychotropic substances[83]. Chapter 6 of Annex 9 deals with some of these problems.

Amendment 19 also introduces new Recommended Practices under subchapter "F – unruly passengers"[84]. Subchapter F provides that "states should take the necessary steps to increase passenger awareness of the unacceptability and consequences of unruly or disruptive behavior in aviation facilities and on board aircraft"[85]. Subchapter F also indicates that "states should require that training in noting, anticipating, and handling of irate or unruly passenger behavior, recognition of potentially escalating situations, crisis containment and related issues should be provided to the relevant staff and crew members who are in contact with passengers"[86].

Despite the tremendous importance of the problems that Chapter 6 of Annex 9 deals with, interestingly, almost all of its provisions are Recommended Practices. Variations in national laws may account for this situation—civil liberties and socially accepted standards of behavior will obviously vary greatly even among advanced industrial nations—compare the U.S. and Singapore, for example.

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[82] For further details regarding security measures please see Annex 17 (Security) to the Convention on Civil Aviation, Safeguarding international civil aviation against acts of unlawful interference, ICAO Documents, Seventh edition, April 2002.

[83] See Annex 9, recommended practices 6.9.1, 6.22, 6.32 Note and 6.42.

[84] See also *infra*, Chapter 4.4 Blacklisting and the "No-Fly List", 83-88.

[85] See Amendment 19, Annex 9, Chapter 6, F – Unruly passengers, 6.

[86] *Ibid.*, F – Unruly passengers, 6.

2.2.2.6 Landing elsewhere than at international airports

Standards 7.1 to 7.4.4 provide that ICAO member states must provide simplified clearance procedures and special assistance to passengers and crew of an aircraft either forced to land on a member state's territory for a stopover, or unable to continue the flight[87].

2.2.2.7 Other facilitation provisions

Standard 6 provides that "Contracting States shall ensure that the provisions of Annex 9 continue to be implemented in the event an airport becomes privatized"[88].

Chapter 8 of Annex 9 contains miscellaneous provisions for facilitation of search, rescue, accident investigation and salvage[89]; relief flights following major catastrophes[90]; marine pollution and safety emergency operations[91]; health regulations[92]; establishment of national facilitation programs[93]; passengers requiring special assistance[94].

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[87] See Annex 9, standards 7.1 to 7.4.4.

[88] Amendment 19, standard 6.

[89] *Ibid.*, chapter 8 (B).

[90] *Ibid.*, chapter 8 (C).

[91] *Ibid.*, chapter 8 (D).

[92] *Ibid.*, chapter 8 (E).

[93] *Ibid.*, chapter 8 (F).

[94] *Ibid.*, chapter 8 (G).

Amendment 19 also adds assistance to aircraft accident victims and their families[95]. "The State of Occurrence of an aircraft accident and adjacent States shall make arrangements to facilitate the entry into their territory on a temporary basis of family members of victims of an aircraft accident"[96] as well as of "authorized representatives of the operator whose aircraft"[97] has been involved in the accident. As a Recommended Practice, no other documents besides a passport or other emergency travel document should be required for such persons[98].

2.3 The Airport Facilitation (FAL) Program

Under Appendix 11 to Annex 9, ICAO set up[99] a "Model Airport Facilitation (FAL) Program". This initiative aims to implement the objectives set out in Annex 9 (Facilitation) "at the operational level" and "to facilitate the completion of border clearance formalities at the airport with respect to aircraft, crews, passengers and cargo"[100].

In practice, this means improving and modernizing:

- entry and clearance procedures for flights[101];

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[95] Amendment 19, Chapter 8, (H).

[96] *Ibid.*, Chapter 8, (H) (a).

[97] *Ibid.*, Chapter 8, (H) (b).

[98] *Ibid.*, Chapter 8, (H) (c).

[99] *Ibid.*, (reworded) Appendix 11, replacing the existing Appendix 11.

[100] *Ibid.*, Appendix 11, 1.1.

[101] Annex 9, standard 6.1.

- border check facilities and establishing an automated passenger clearance system[102];
- traffic flow and checkpoint measures to handle increased traffic[103];
- signage to help passengers orient themselves at airports[104];
- the balance between staffing and traffic levels[105];
- baggage delivery to customs[106];
- access to funds for people in the arrivals area[107];
- coordination of facilitation, narcotics control, aviation security and dangerous goods handling procedures[108];
- coordination of activities and requirements of various inspection agencies so that air cargo shipments clear promptly[109];
- the set up and maintenance of electronic systems for cargo handling[110], and,
- the balance between cargo clearance staffing and cargo traffic needs[111].

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[102] *Ibid.*, standards 3.37 and 6.26; recommended practice 3.33.

[103] *Ibid.*, standard 6.3.

[104] *Ibid.*, recommended practices 6.9 and 6.12.1.

[105] *Ibid.*, recommended practice 6.3.1.

[106] *Ibid.*, standard 6.28.

[107] *Ibid.*, standards 6.63, 6.64 and 6.65.

[108] *Ibid.*, standard 8.19.

[109] *Ibid.*, standard 4.25; recommended practice 4.28 and 4.29 and 6.38 to 6.50.

[110] *Ibid.*, standards 4.15 and 4.4.

All with the aim of ensuring that:

- passengers embark within 60 minutes and disembark within 45 minutes of their entry times[112], and
- all cargo inspection formalities are completed within three hours.[113]

2.4 The National Facilitation (FAL) Program

Under the direction of the airport manager, the Airport Facilitation Committee is the decision maker at operational level and the authority in charge of the facilitation program. The Airport Facilitation Committee is to be independent of the National FAL Committee, although the latter may supervise its activities[114].

The Airport FAL program aims to implement the objectives of Annex 9 at the operational level. The purpose of the National FAL program, by contrast, is to "implement the Chicago Convention mandate that contracting States provide for and facilitate the cross-border formalities which must be accomplished with respect to aircraft engaged in international operations and their passenger, crews and cargo"[115].

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[111] *Ibid.*, standard 6.60.1.

[112] *Ibid.*, recommended practices 3.28 and 3.31.

[113] *Ibid.*, recommended practices 4.28 and 4.29.

[114] Amendment 19, Annex 9, Appendix 11, replacing the existing Appendix 11, 3.1.

[115] Amendment 19, Appendix 12, replacing the existing Appendix 12, 1.

The "Chicago Convention mandate" encompasses:

- landing at customs airports[116];
- entry and clearance regulations[117];
- prevention of spread of disease[118];
- facilitation of formalities[119];
- customs and immigration[120];
- adoption of international standards and procedures[121]; and
- derogation and variation from international standards and procedures[122].

The body in charge of the National FAL program is the Civil Aviation Authority or the Ministry of Transportation (or both) of the state concerned[123]. The airport operators, NGO's and governmental agencies interested are also key players, under the direction of the National FAL Committee[124].

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[116] Chicago Convention, Article 10.

[117] *Ibid.*, Article 13.

[118] *Ibid.*, Article 14.

[119] *Ibid.*, Article 22.

[120] *Ibid.*, Article 23.

[121] *Ibid.*, Article 37.

[122] *Ibid.*, Article 38.

[123] *Ibid.*, 3.

[124] *Ibid.*, 3.4. The participants to the national FAL program are: customs; foreign affairs; agriculture/environment; security and narcotics control; tourism; immigration; passport/visa issuing authorities; public health; identification and card issuing authorities; quarantine.

Summary

This chapter broke the concept of facilitation down into it's component tasks, and indicated the relevant sources of law and international standards in the area. The main international instruments that apply to facilitation are the Chicago Convention and Annex 9. Annex 9 to the Chicago Convention deals directly with entry and departure of aircraft, entry and departure of persons and their baggage, entry and departure of cargo and other articles, inadmissible persons and deportees. The drafters of the Chicago Convention designed Annex 9 be more easily amended on a consistent basis as standards in these areas change. Finally, the text canvassed the major changes made to Annex 9 following the Cairo meeting of the ICAO FAL Division.

The following chapter offers a comprehensive view on the automated systems used today in the aviation industry.

3. Automated systems

This chapter will begin by presenting the various electronic systems currently used in the aviation industry. It will then evaluate the potential of biometric systems to facilitate air travel while simultaneously improving security. The chapter will close with a critical evaluation of the status quo and potential of the automated systems available.

3.1 Adding capacity

Faster planes are not the answer[125]. Probably the largest problem in air traffic control systems is increasing capacity. Airports can alleviate the congestion created by increased numbers of planes taking off and landing by introducing new rules to govern vertical and horizontal separation between flight paths. Airlines want their aircraft flying "the minimum time track (MTT) for fuel efficiency"[126]. The ultimate impact of such change is that the number of take-offs and landings will increase.

This will have a knock-on effect: without correlative improvements to facilitation, the congestion bottleneck will occur on the ground[127]. The increased

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[125] The Concorde's last commercial flight was on October 23, 2003, and supersonic aircraft are an unlikely solution, even long term. The current high energy prices, the environmental impact of stratospheric emissions on the ozone layer, as well as increased development and maintenance costs make supersonic aircraft an unlikely contender as a means of mass transport. *See also Concorde – the last goodbye* online at http://www.bbc.co.uk/manchester/features/concorde/views/concorde_views.shtml last accessed on April 13, 2005.

[126] Swiss Reinsurance Company Zurich, *Who is in control? The world aircraft operations on the ground and in the air*, 4/97, 17.

[127] Particularly considering the privatization wave that have been "sweeping the airline industry, [...] [t]here is a compelling need to align service providers and their services [...] in order to meet

numbers of passengers handled by new models of aircraft discussed above will further exacerbate the existing situation. And taking into account the existing infrastructure, this means that the current headache of the stakeholders – airports, airlines and ultimately passengers – might as well become a migraine.

Any viable solution to will have to involve facilitation on the ground. Some airports have already begun planning the modifications they will need to handle the increased volume when the first A380 will touch down on their tarmac. One example is Auckland International Airport, which has slated a US$19 million investment in infrastructure modifications, such as runway, taxiway and terminal upgrades to enable the airport to handle the A380[128].

3.2 Logistics vs. Border Control

Traffic volume, time, service levels and public image or branding all impact the competitiveness of various automated systems, and thus, ultimately, their profitability. These are the (ultimately) logistical concerns that the airlines and other profit-motivated actors seek to emphasize.

While they are hardly unaware of economic concerns, states are critically concerned with border control, which involves an interaction between sovereignty, security and inter-state agreements, on one hand, and freedom of movement and globalization, on the other. Border control agencies include

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increasing demands by airlines for these services". R. I. R. Abeyratne, *Funding an international financial facility for aviation safety*, Ann. of Air & Sp. L. Vol. XXVII, McGill University (2002), 2.

[128] Brendan Sobie, *Auckland Airport prepares for Emirates A380 service*, March 3, 2005 online www.rati.com - Air Transport Intelligence News - last accessed on April 3, 2005.

customs, immigration, public health, agriculture, national defense, policing and external affairs. Border control involves concerns as diverse as security threats, travel documents fraud and immigration control, anti-drug trafficking enforcement, all in the context of political concerns and limitations on available resources.

3.3 Facilitation and Technological Systems

Reducing obstacles represents a major challenge for all stakeholders. Some solutions are simply matters of human organization and are not heavily technology-dependent. Traffic assignment, structural adaptation, flow modification, improved cooperation among actors and coordination of services are just a few examples. Some solutions are technology-dependent, such as upgrades and data interchange. Some solutions, such as updated regulations, simplified procedures, clear and standardized risk criteria, selective examination systems and canine detection teams are technical but not necessarily technological *per se.*

Multiple channels should be in place for clearing inbound passengers and crew with minimal delay. The use of green[129] and red channels[130] can further facilitate the flow of passengers[131] by dividing passenger traffic between those

[129] For passengers having "nothing to declare".

[130] Annex 9, departure procedures, recommended practice 3.29.

[131] See also Appendix 6 to Annex 9 – recommendation of the customs co-operation council.

carrying goods for which fees or other restrictions apply ("red line") and the rest of the passengers ("green line").

3.4 Context: Post-9/11 Changes to the Surveillance Environment

Since 9/11, both the U.S. and many other governments, including the EU member states, have moved to increase their general capacity for surveillance. The USA PATRIOT Act[132], enacted in the wake of 9/11[133], relaxed the conditions under which U.S. authorities could obtain court permission in order to monitor Internet traffic and tap telephone lines. The EU's longstanding pro-privacy stance on data protection may be on the brink of a sharp U-turn, easing legal restraints on the collection and use of information by governments. Following a 2002 EU directive[134], last year France, the UK, Sweden and Ireland proposed, "to retain data for up to three years from telephone calls and emails as part of an overall fight against terrorism"[135]. The EU initiative would "allow member states to require firms to retain data on everyone using mobile phones, landlines, e-

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[132] See *infra*, note 249.

[133] We would like to point out that all aircraft involved in the 9/11 attacks were on domestic flights, whereas the measures taken by the US Government following the attack go far beyond the borders of the United States. See also Naa Adoley Addy, *Deregulation, health, safety and security*, LL.M. thesis the Institute of Air and Space Law, McGill University 2002, 87.

[134] DIRECTIVE 2002/58/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications) http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_201/l_20120020731en00370047.pdf last accessed on April 8, 2005.

[135] Honor Mahony, *MEPs up in arms about data privacy law*, EU Observer online at http://euobserver.com/?aid=19003&sid=9 last accessed on May 16, 2005.

mails, chat rooms, the internet or any other electronic device"[136]. While this may sound alarming to privacy advocates, the capacity for such monitoring is intrinsic to the infrastructure of the Internet. Marketing, data-mining and skip-tracing firms have already been doing such monitoring for years for commercial purposes, especially in the U.S. where there are few to no effective legal controls on such activities. This state of affairs is the context and backdrop against which to examine automated systems.

3.5 Automated systems – overview

The following automated systems will be discussed below— EDI: electronic data interchange[137], CRS: computerized reservation systems[138]; ATB: advanced ticket booking[139]; API: advanced passenger information[140]; DCS: departure control systems[141]; and finally, MRTD: machine readable travel documents[142].

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[136] The Economist – No hiding place. January 23, 2003 http://www.economist.com/agenda/PrinterFriendly.cfm/none/?Story_ID=1534283 last accessed on March 13, 2005.

[137] *Infra*, 38.

[138] *Infra*, 38-40.

[139] *Infra*, 40.

[140] *Infra*, 40-42.

[141] *Infra*, 43.

[142] *Infra*, 43-44.

3.5.1 EDI: Electronic Data Interchange

Electronic data interchange is any data transfer using electronic means. CRS, ATB, and API are all forms of EDI. API uses an EDI system that, according to ICAO, "[...] involves the electronic interchange of a limited number of data elements"[143].

Technically, EDI must ensure, first, that information "carried" from one point to the other is not corrupted, and, second, that only those entitled to have access to this data can access, decipher and read the information. EDI may raise privacy concerns in cases where inadvertent disclosure of sensitive data occurs.

3.5.2 CRS: Computerized Reservation Systems

Set up in the 1980's by airlines, the computer reservation systems link together large databases that connect airlines, travel agents, auto rental companies and hoteliers. Currently, the main CRS are Amadeus[144], Galileo[145], Sabre[146] and Worldspan[147]. Out of these four, all but Amadeus are U.S.-based companies.

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[143] See also http://www.icao.int/icao/en/atb/fal/api.htm last accessed on April 16, 2005.

[144] Market leader in Europe, Amadeus offers services to 145 airlines via over 140,000 terminals worldwide. See also http://www.amadeus.com/index.jsp last accessed on April 12, 2005.

[145] For further details on Galileo please see http://www.galileo.com/emea/uk/index.htm last accessed on April 12, 2005.

[146] Please see also http://www.sabreairlinesolutions.com/ last accessed on April 12, 2005.

[147] According to Worldspan web site, the average number of Passenger Name Records in the system is 33.2 million. See http://www.worldspan.com/home.asp?fPageID=5 last accessed on April 12, 2005.

The European Union is planning deregulation[148] in this field[149] with the aim of allowing competing computer reservation systems[150] to negotiate deals with individual carriers, thus producing lower prices for air travelers. Currently, all computer reservation systems are supposed to offer the same terms to all airlines. "At the heart of the problem, however, is whether all systems will have access to full flight and pricing information from all carriers because three big airlines - Lufthansa, Iberia and Air France - still control the continent's dominant system, Amadeus."[151]

Some fear that the planned CRS deregulation will allow Lufthansa, Iberia and Air France to distort competition, increase ticket prices and reduce passenger choice in the German Spanish and French markets[152]. The current regulations require airlines to share all information with competitors, such as Galileo International and Sabre. Much can be inferred from the fact that Galileo

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[148] In 2004 the United States the government has lifted the restrictions imposed in the mid 1980's on the computer reservation business.

[149] By the end of 2005.

[150] For additional information on CRS regulations see Zur Hausen, Henning – *CRS regulations and the GATS,* (LL.M. Thesis, Institute of Air and Space Law, McGill University, October 1994).

[151] Paul Meller, *Europe's air travelers may face higher fares* – The International Herald Tribune, Saturday, March 26, 2005.

[152] Early March of this year, the EU antitrust authorities have given the "go ahead" to the creation of the WAM Acquisition, a new holding company for Amadeus. Whereas Air France, Iberia and Lufthansa have now lower equity shares in Amadeus, it is yet rather blurry how the transaction does impact on their control over Amadeus. According to a Reuters report dated April 8, 2005 and published by *AirWise News*, Amadeus is 23% owned by Air France, 18% by Iberia and 5.1% by Lufthansa (see also *Lufthansa Says Amadeus Deal Worth EUR170 Million* http://news.airwise.com/story/view/1112988960.html last accessed on April 8, 2005 and *Amadeus Sale Worth EUR600 Million To Iberia*, http://news.airwise.com/story/view/1113238897.html last accessed on April 11, 2005).

and Sabre currently plan to form a group called "C-Fare" to lobby the European Commission to not go ahead with full deregulation[153].

3.5.3 ATB: Advanced Travel Booking

Advanced Travel Booking refers to advance orders (bookings) placed either directly by the traveler, via the Internet, or via a travel agent. This type of booking requires an interface that permits the end-user – the traveler, future passenger – to be identified by the carrier, and the operator, if the carrier and operator are different companies.

3.5.4 API: Advanced Passenger Information

Today, many countries require airlines to provide information on passengers ahead of their arrival at destination.

API information is mainly the data contained in the machine-readable zone of an ICAO-compliant travel document. API typically includes the following data: full name of the passenger, date of birth, gender, passport number, country of citizenship and country of passport issuance[154].

Airlines supply API data at no charge to the relevant government agencies. With more countries turning their attention to the development of API

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[153] Statements against deregulation are being voiced not only by US-based entities, but also by other important airlines in Europe, such as British Airways.

[154] For details about the U.S. requirements see *US passenger list (PAXLIST) message implementation guidelines – Advanced Passenger Information for Airlines* online at http://www.cbp.gov/linkhandler/cgov/travel/inspections_carriers_facilities/apis/un_edifact_guide.ctt/un_edifact_guide.doc last accessed on April 14, 2005.

systems, the shortcomings of the current system are increasingly under discussion by international working groups[155].

Manual collection and data entry at check-in desks for a scheduled flight is both time-consuming and error-prone[156]. Machine-readable passports would remedy such problems somewhat. Ultimately, the information required by governments needs to be collected as early as possible in the transport chain, ideally moving from the airline check-in counter off the airport, to the moment of online booking. Effective means of online identity verification, and a fast and error-free method of re-confirming identity, originally verified online, at the check-in counter, would be necessary conditions for implementing such a system. This would speed the border clearance process and enable border staff to focus selectively on higher-risk areas[157] and 'normal risk' passengers (versus 'lower-risk passengers').

3.5.5 API *versus* PNR

Advanced Passenger Information (API) needs to be distinguished from Passenger Name Record (PNR) data.

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[155] See also *Report of the twelfth session*, ICAO Doc 9838, FAL/12 (2004) Agenda Item 2.4: Advanced Passenger Information (API).

[156] R. I. R. Abeyratne, *Attacks on America – Privacy implications of heightened security measures in the United States, Europe and Canada*, 67 J. Air L. & Com. 84 (2002), 85.

[157] See also Air passenger process – a description of the air travel process of Pre-Travel, Check-In and Boarding, Security and Border Control and the analysis of the steps required to achieve the SPT vision of simplified passenger travel http://www.iata.org/NR/ContentConnector/CS2000/Siteinterface/sites/whatwedo/file/SPT_Air_Passenger_Process.pdf last accessed on April 14, 2005.

In accordance with ICAO Recommended Practice, API involves collection of basic biographical information from machine-readable travel documents— the same information passengers provide to border agents in the absence of API. PNR data, by contrast, includes reservation and itinerary information that is both personal and intrinsically more intrusive. From the point of view of security personnel, PNR data is also potentially more revealing. PNR data is at the heart of present public concern over data protection. Most countries do not currently request PNR data, and the *status quo* is not expected to change anytime soon[158].

The majority of states' privacy legislation indicates that personal information (1) must be used only for the purpose(s) for which it has been collected, (2) must be kept for only as long as it is needed, and (3) that access to it must be restricted to those who need it, unless expanded access is expressly consented to by the data subject.

Data "privacy concerns must be addressed for all non-voluntary information sharing initiatives and voluntarily provided information must be safeguarded from internal abuse."[159] The legal basis upon which airlines could provide PNR data to foreign governments remains yet questionable[160].

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[158] See also *Report of the twelfth session*, ICAO Doc 9838, FAL/12 (2004) Agenda Item 2.4: Advanced Passenger Information (API).

[159] See also *Air passenger process – a description of the air travel process of Pre-Travel, Check-In and Boarding, Security and Border Control and the analysis of the steps required to achieve the SPT vision of simplified passenger travel* http://www.iata.org/NR/ContentConnector/CS2000/Siteinterface/sites/whatwedo/file/SPT_Air_Passenger_Process.pdf last accessed on April 14, 2005.

[160] For official position of Citizenship and Immigration Canada please see http://www.cic.gc.ca/english/visit/api.html last accessed on April 14, 2005. The Canadian

3.5.6 DCS: Departure Control Systems

Departure Control Systems aim to improve passenger handling and use of payload capacity. DCS uses data such as:

- transfer reservations;
- seat allocation / boarding passes;
- baggage tagging / reconciliation;
- weight and balance information;
- passenger manifests; and
- boarding and transit control.

DCS increases revenue streams, by reducing automation errors and producing solutions for problems in the existing system.[161]

3.5.7 MRTD: Machine Readable Travel Documents

As discussed above[162], ICAO configuration standards provide a basis for international acceptance of machine-readable travel documents.

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government treats both API and PNR data as a single issue. Although both types of data may be used to "identify and intercept air travelers who may pose a concern", the two types of data are collected separately, by different means and to different extents. Citizenship and Immigration Canada however asks airlines to give notice to "all travelers bound for Canada that immigration authorities will be given passenger and crew information for official use by law". In Canada, this data will be kept for 6 (six) years. (http://www.cic.gc.ca/english/visit/api.html, last accessed on April 14, 2005).

[161] See also http://www.aspcan.ca/index_section1_lien3.html,http://www.tatainfotech.com/industry/transportation/airlines/departure.htm,http://www.airport-technology.com/projects/shanghai/, http://www.unisys.com/transportation/solutions/airports/local_departure_control/and http://www.sita.com/Solutions/Passenger_and_Travel_Solutions/Departure_Control_and_Check-in/default.htm last accessed on April 14, 2005.

[162] See *supra*, 2.2.2.2 Entry and departure of persons and their baggage, 18-21.

MRTD[163] with encrypted biometrics will enable automated passenger authentication. In conjunction with API using online identity verification, the result is faster passenger processing and increased security for all passengers.

MRTD allow for optical recognition of data, as well as secure, fast and accurate information processing. MRTD's will employ public key encryption to "verify the authenticity and integrity of the data stored in the MRTD" [164]. One of ICAO's missions will be to develop a Public Key Directory Service and provide it for all participating States[165].

3.6 Biometrics

Biometric systems are used for two purposes: verification and identification. Verification involves checking whether a given person is who he or she claims to be. Verification is performed by comparing a measured biometric with one known to come from a particular person. Conceptually, verification is a 'one-to-one' comparison. Identification, by contrast, is a 'one-to-many' comparison. A "subject's identity is determined by comparing a measured

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[163] See also ICAO online at http://www.icao.int/mrtd/Home/index.cfm last accessed on April 14, 2005.

[164] See also *Machine Readable Travel Documents – Technical Report – PKI for Machine Readable Travel Documents offering ICC Read-only Access*, Version 1.1, October 1, 2004, ICAO, online at http://www.icao.int/mrtd/download/documents/TR-PKI%20mrtds%20ICC%20read-only%20access%20v1_1.pdf last accessed on April 14, 2005.

[165] Machine Readable Travel Documents – Technical Report – PKI for Machine Readable Travel Documents offering ICC Read-only Access, Version 1.1, October 1, 2004, ICAO, online at http://www.icao.int/mrtd/download/documents/TR-PKI%20mrtds%20ICC%20read-only%20access%20v1_1.pdf last accessed on April 14, 2005. An interesting question may arise if anything goes wrong and the information is corrupted midstream. Would that trigger ICAO's liability, as administrator of the key, and if so, would there be anything, realistically speaking, that the person who suffered the damage could do?

biometric against a database of stored records"[166]. The number of biometrics useful for verification is much larger than the number that can effectively used for identification. Only biometrics intrinsically unique to a given individual, such as fingerprints, iris scanning and facial recognition (and, potentially, DNA), are useful for identification.

Biometrics vary in cost, complexity and intrusiveness. As a result, different biometric systems are used for different kinds of security checks[167].

No form of biometric system yet devised is likely to overcome the "human factor." By way of comparison, screening luggage for hours at a time tends to be excruciatingly dull. This makes it hard to focus on the task for a long period.[168] Economic constraints that lead to relatively low wages for luggage screeners do not help matters. The result is that a certain percentage of "offending" luggage will slip through the net. The same is likely to be true for biometric screening of thousands of individuals, especially if the vast majority of "positives" for risk end up being false positives. Obviously, even the most sophisticated technology will

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[166] The Economist, *Biometrics / Prepare to be scanned*, December 4, 2003 http://www.economist.com/agenda/PrinterFriendly.cfm/none/?Story_ID=2246191 last accessed on March 13, 2005.

[167] The Economist, *Security technology / Watching you*, September 20, 2001 http://www.economist.com/agenda/PrinterFriendly.cfm/none/?Story_ID=787987 last accessed on March 13, 2005.

[168] *Ibid.* Research by the FAA, which has not been published in detail for security reasons, found that screeners' ability to detect suspect objects is not improving, despite the new technology - The Economist. Moreover, adopting a puzzling position, the US Government is considering returning to private hands the passenger screening at US airports. As reported by AirWise News, a governmental report indicated that "private-sector screeners outperformed their federal counterparts in testing at five airports (AirWise News, *US Airport Screeners Show No Improvement*, April 20, 2005). This comes as an unexpected potential measure to come, taking into account that the same administration was the one that had taken the exact opposite stance by federalizing the screening service in the US following 9/11.

be of little use if it is not in the hands of well-trained, dedicated and diligent personnel.

Computer-assisted passenger screening, or CAPS[169], is a potentially useful weapon against those terrorists that use their own names when traveling and do not carry weapons. one technology that might be helpful to identify them is the so-called computer-assisted passenger screening or CAPS[170]. CAPS uses information from the CRS[171] system, and PNR information, to select individual passengers for intensified security procedures. Civil-liberties groups have leveled intense criticism at CAPS, on the grounds that it infringes individual liberty and engages in discriminatory ethnic or national profiling[172]. As of this writing, CAPS has yet to account, publicly at least, for even one interdicted terrorist plot or network. CAPS may well be providing nothing more than a "dangerous illusion of invulnerability"[173]. It is an open question whether existing CAPS systems would be capable of interdicting a group that sought to duplicate something similar to the 9/11 attacks.

As *The Economist* points out, "it is difficult to avoid the conclusion that the chief motivation for deploying biometrics is not so much to provide security, but to

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[169] CAPS was first introduced by a number of American airlines in 1998.

[170] CAPS was first introduced by a number of American airlines in 1998.

[171] See also *supra*, 38-40.

[172] See also *infra*, note 293.

[173] See *supra*, note 166.

provide the appearance of security"[174]. Not unlike CAPS, biometrics provide the illusion of invulnerability. Upon mature reflection, one might be led to conclude that this situation is not as problematic as it might initially appear. Statistically speaking, any given traveler's chance of being a victim of a terrorist incident is infinitesimal, especially in comparison with the other, more prosaic, risks of air travel. CAPS and biometrics may amount to an illusory solution for a largely illusory problem.

The illusory solution, however, is not cheap. In *Homeland security is in the eye of the passport holder*, Frances Williams estimates that the total cost for implementing biometric systems will reach 7 billion dollars by 2007[175].

The International Biometric Group[176] provides a very interesting table of market share by type of biometric technology. Fingerprint scanning has "secured" 59.4% of the market. The remaining 40% of the market is divided amongst the other technologies. Facial and hand scans account for 13% and 11.4%, respectively, followed by 8.4% for iris scans, 4.7% for voice scans, and 2.7% for signature scans. Keystroke scans account for 0.4%[177]. It is worth examining each of these individual technologies in turn.

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[174] *Ibid.*

[175] Frances Williams, *Homeland security is in the eye of the passport holder*, FTWire October 14, 2004,http://db.eiu.com/index.asp?layout=articleAv&doc_id=dms827681082&eiu_geography_id=&publication_type_id=&search=biometrics&date_restrict=&hits=25&starting last accessed on April 17, 2005.

[176] http://www.biometricgroup.com/ last accessed on March 20, 2005.

[177] The Economist, *Biometrics / Prepare to be scanned*, December 4, 2003 http://www.economist.com/agenda/PrinterFriendly.cfm/none/?Story_ID=2246191 last accessed on March 20, 2005.

Facial recognition is cited as "unique among biometrics in that it can be used passively – in other words, an image of a face can be compared with a database of suspects without the subject's knowledge"[178].

Human beings have evolved a capacity to easily recall and recognize faces due to evolutionary pressures. The intricate difficulty of duplicating this "routine" feat in a computer indicates the sheer complexity of face recognition. The majority of computerized face-recognition systems function by setting up a template based on about 30 "markers" – positions of the edges of the eyes, the cheekbones, the base of the nose, and so on. Particular "markers" are chosen because they remain unaltered by changing facial expressions and the presence or absence of facial hair. Strictly speaking, what computers recognize are fixed template "maps" that reduce the complexity of individual faces to a set of roughly 30 "markers" that are sufficient to distinguish a given face as unique.

A recent U.S. government study questions the accuracy of existing face-recognition systems. None of the systems tested performed well at their basic function, identifying a subject from a face captured by a camera. The systems fared even worse at trying to recognize a face surreptitiously. Three of the systems were capable of verifying the identity of a subject in a controlled environment[179], which hardly reflects the crowded and potentially chaotic

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[178] *Ibid.* "Such systems, connected to a network of closed-circuit television (CCTV) cameras, are already used to spot criminals and football hooligans in Britain. This summer the same technology was installed at Keflavik airport in Iceland."

[179] A 'controlled environment' is one such as the photo booths used to take ID or passport pictures.

environment of a congested modern airport. In the TSA's own tests, not a single wanted person was spotted.

Use in actual airport conditions can only exacerbate the impact of defects in existing face-recognition technology.

> "Even a false match rate of one in 10,000 would produce thousands of false matches. And if you are trying to spot members of a small group of known terrorists, even the best of today's biometric systems produce hundreds of false matches for every correct match with a terrorist. The result is that the system is flooded with false alarms, which are routinely ignored, providing almost no additional security. As a result, the new border-control systems now being implemented at American border posts are merely verification systems." [180]

We have already pointed out the tedium of most security work, and the impact of tedium on human accuracy. Watching face-recognition-enabled security monitors in an airport, and responding to what could easily be a once-an-hour stream of false alarms, could easily compared to watching the world's dullest television show, all day, interspersed with irritating and predictable "commercial" breaks— to investigate individual passengers in response to what is almost certainly a false alarm. The reaction of "false positive" passengers to being investigated, seemingly at random, is predictable. Other alternatives should be investigated.

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[180] See *supra*, note 177.

Hand geometry is the first biometric technology to become widely used. As early as 1993, San Francisco's international airport introduced this method to control employee access. Israel's Ben Gurion airport uses the same biometric technique to allow trusted passengers to pass security control. Several major airports in the United States also allow frequent travelers to skip lines at immigration desks using a similar system, called INSPASS.

Hand geometry appears to suffer from a crucial defect: it is not clear that individuals' hands differ enough to provide a robust identification system. As a result, hand geometry's market share is falling.

Used properly, fingerprinting can be a quite accurate verification system. Modern forensic technology converts fingerprints into a numeric code. This code is than compared with a database, in seconds, with a degree of accuracy that may be as high as 99.9%[181].

However, law-enforcement agencies perform forensic fingerprinting in conditions that are very different from airport security. When law enforcement agents fingerprint criminal suspects, they fingerprint all ten fingers, and roll each finger back and forth, to get "nail-to-nail coverage". This thoroughness is simply not feasible in a routine security screening at airport security. Moreover, "around 5% of people do not have readable fingerprints, either because their fingerprints are genetically indistinct, or because years of manual labor have worn them

[181] See also Frances Williams, *Homeland security is in the eye of the passport holder*, FTWire October14,2004,http://db.eiu.com/index.asp?layout=articleAv&doc_id=dms827681082&eiu_geography_id=&publication_type_id=&search=biometrics&date_restrict=&hits=25&starting last accessed on April 17, 2005.

down"[182]. Similar effects can easily be obtained by sanding down one's fingerprints or filling in the fingerprint ridges with a thin layer of fast-drying commercial glue. While fingerprint scanners may cost as little as US$ 100, many models can be easily fooled. While technology is improving[183], many scanners can be "spoofed" with a breath of air, which reactivates the previous print left on the scanner.

Eye scans are another option. Experts now agree that the iris is a better biometric than the retina. Iris scanning is generally considered to be the most reliable biometric[184].

There are other biometrics, such as voice recognition[185], gait recognition[186], dynamic signature-recognition[187], and thermal imaging[188]. Existing technology is not sufficient to incorporate any of these biometrics into an MRTD.

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[182] The Economist – Biometrics / Prepare to be scanned. December 4, 2003 http://www.economist.com/agenda/PrinterFriendly.cfm/none/?Story_ID=2246191 last accessed on March 13, 2005

[183] Multispectral Spoof Detection / Current Efforts http://www.biometrics.org/bc2004/Presentations/Conference/2%20Tuesday%20September%2021/Tue_Ballroom%20B/3%20Technology%20Solns/Rowe_update.pdf last accessed on March 13, 2005.

[184] State-of-the-art iris systems, indicate that the rate of false non-matches can be as a high as 6%. The Functions of Biometric Identification Devices online at http://www.angel-investor-news.com/ART_Biometric.htm last accessed on April 6, 2005.

[185] Voice recognition, however, in spite of the low cost, it is not reliable.

[186] Gait recognition tries to establish a pattern and to recognize people from the way they walk.

[187] This biometric is based on analysis of the shape of a signature and the way the pen moves while it is being written.

[188] The thermal imaging seeks to identify people by the pattern of heat which their bodies emit.

Considering the limitations of individual biometrics, a "multibiometric" system, using airport biometric scanning and several biometrics in an MRTD, coupled with remote online API, may offer the best solution.

This approach cannot be implemented until biometric passports and biometric visas[189] are issued. Currently, the United States has chosen a combination of fingerprint and face recognition[190], while Europe appears to be considering the same combination[191]. Oman and the United Arab Emirates plan to issue biometric identity cards based on finger-scanning technology, and the United Kingdom plans to add iris scans."[192]

All of these plans follow the ICAO recommendation that proposed that finger scanning be adopted as an international standard.

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[189] For additional details on biometric visas please see Infocomm Development Authority (IDA) Singapore - *Smart VIP (Smart Visa for Identification with Passport)* online at http://www.ida.gov.sg/idaweb/techdev/infopage.jsp?infopagecategory=articles:techdev&versionid=4&infopageid=I2913 last accessed on April 18, 2005.

[190] Regarding the "constitutional sphere of privacy protection" in the United States please see J.D. Woodward Jr., *Identifying law & policy concerns*, in A. Jain, R. Bolle & S. Pankanti, *Biometrics: personal identification in networked society,* Kluwer Academic Publishers, Boston 1999.

[191] The US has imposed an October 2005 deadline for biometric passports to be issued by countries (including EU member states from Western Europe which normally do not need US visas) in order to avoid their citizens to be required a visa to enter the United States. Out of the EU countries benefiting from the US visa waiver, only six – Belgium, Germany, Austria, Finland, Sweden and Luxembourg are prepared to meet the deadline. Lucia Kubosova, *Europeans ask for more time on biometric passports*, EU Observer March 30, 2005 online, http://euobserver.com/?aid=18753&rk=1 last accessed on April 18, 2005. Regardless of the objective reasons which impede on the issuance and complete withdrawal from circulation of the "old" passports, the United States is "unlikely to put off the deadline on biometric passports". *Ibid.*, *US 'unlikely' to put off deadline on biometric passports*, April 1, 2005, EU Observer online http://euobserver.com/?aid=18771 last accessed on April 18, 2005.

[192] Multispectral Spoof Detection / Current Efforts http://www.biometrics.org/bc2004/Presentations/Conference/2%20Tuesday%20September%2021/Tue_Ballroom%20B/3%20Technology%20Solns/Rowe_update.pdf last accessed on April 7, 2005.

As fingerprint readers are much cheaper than iris scanners[193], this decision was motivated by financial concerns. It is worth noting that less wealthy countries, again, are hardly leading the drive to adopt biometric systems. Noticeably, the United States has opted to adopt face recognition also, on the ground that the fingerprints of many terrorists are not available, whereas pictures of many wanted terrorists are available. Given the proven high error rates of existing face-recognition systems, the adoption of face-recognition may prove to be premature at best.

3.7 SPT: Simplifying Passenger Travel[194]

Simplifying Passenger Travel, SPT[195], represents a joint initiative of a number of key parties to make life easier for passengers. The aim of aviation

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[193] At the Cairo meeting of the FAL Division of ICAO in March 2004, some doubts and concerns were raised regarding the fact that technologies involved are evolving, as well as regarding the lack of specific data on the costs of implementing the new specification. It was also stressed that while evaluating the future costs of the implementation of the new specifications, it is also very important to consider the current costs resulting from document fraud and associated problems. See also *Report of the twelfth session*, ICAO Doc 9838, FAL/12 (2004) 14.

[194] *Ibid.* The following sub-chapter will deal with the proposed initiatives in terms of simplification of all the stakeholders' life and aiming at a smooth air travel for everyone. Nonetheless, technology cannot possibly solve everything. One of the biggest obstacles to a leaner industry is the persistence of the government-to-government agreements that still control routes. As talks between the United States and the European Union break down and then are resumed just to break down again very soon after that, introducing free competition across the Atlantic appears to remain a remote goal. One key concession the United States and the European Union should make is to allow foreign airlines to own majority stakes in their own airlines. That would open the door to international mergers and allow consolidation to eliminate excess capacity from the airline industry. "Such a process would also end the long nightmare of America's beleaguered airline industry. It is a dream that one day just might fly." However, since the "open skies" matter does not fall under the scope of the present study, we will not insist on this international debate. Nevertheless, we felt it was worth bringing this matter to the attention of the reader here. For an in-depth analysis of this issue please see Isabelle Lelieur, *Law and policy of substantial ownership and effective control of airlines: prospects for change*, Aldershot: Ashgate 2003, England.

[195] http://www.simplifying-travel.org/public/pub.php?id_page=1 last accessed on March 21, 2005.

facilitation is to simplify the movement of individuals and goods across states. The ultimate goal of the SPT initiative is to "cut passenger processing time, improve security and border controls, reduce barriers to travel [and] make optimal use of staff and facilities"[196]. The SPT initiative is joint effort by international organizations and industry operators to implement optimum facilitation across a wide geographical range.

SPT program stakeholders include: (i) passengers; (ii) travel agents; (iii) airlines; (iv) airports; and (v) governments, through the national control authorities; and (vi) technology providers.

For passengers, SPT is supposed to deliver "hassle-free" travel. For airlines, SPT should increase customer satisfaction, business and profits, with more people willing to travel by air, even for relatively short distances. For airports, SPT represents better resource management and better facility use. For governments, SPT could mean an increased tax base and better resource utilization. For technology providers, SPT is an opportunity to sell their technology.

[196] http://www.iata.org/NR/ContentConnector/CS2000/Siteinterface/sites/whatwedo/file/SPT_Executive_Brief.pdf last accessed on March 21, 2005.

3.8 Major changes to come in the aviation industry – IATA's Simplifying the Business (StB) program[197]

The key elements of focus for the StB program are the following[198]:

- universal electronic ticketing;
- expansion of common use self service (CUSS) kiosks;
- radio frequency identification (RFID) for baggage; and
- bar-coding for boarding passes.

The following sections will address each element of StB in turn.

3.8.1 Universal electronic ticketing

Major air carriers have been using e-ticketing for some time[199]. E-ticketing allows passengers to book their tickets over the Internet, print out a number code and present themselves at the check-in desk with the code and their passport, quickly and easily.

This change completely overhauls check-in: passengers with nothing more than carry-on baggage can even check-in from home.

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[197] Personal notes following Tom Murphy, SVP IDFS IATA, *IATA Simplifying the Business*, presentation, IATA headquarters, Montreal, November 2004.

[198] A fifth element is automated interlining. However, we will insist only on the first four elements, as there is a mutual interest passenger / industry in their implementation. For further details please see http://www.iata.org/whatwedo/tariffs/background.htm last accessed on April 13, 2005.

[199] While the number of e-tickets will going up, so will the cost of paper tickets. This may be seen as an "incentive" to push for a wide and fast-track adoption of e-ticketing as aviation standard. See *Simplifying the business*, IATA, Issue 8/9 August/September 2004, 23.

As each paper ticket costs an airline about $10, the savings due to "paperless" ticket environment are estimated at over $3 billion a year[200]. The deadline for full implementation of this phase of StB is 2007.

While implementing e-ticketing with individual airlines is a relatively easy task, the situation changes considerably if several airlines are involved in the actual carriage. This is because an "interlining" system to allow different airlines' databases to communicate with one another[201] is then needed.

3.8.2 Common use self service (CUSS) kiosks

Common Use Self Service kiosks allow E-ticket passengers retrieve their boarding passes from self-service machines in the airport lobby. This avoids the check-in counter lineup, and considerably reduces the time needed for embarkation. It also lowers the average cost for the airlines from US$ 3.68 per passenger, using ground personnel, to US $ 0.16 using a self-service check-in machine[202].

CUSS terminals still have some limitations. CUSS does not currently allow check-ins until the final destination if this is in third country. Currently, many

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[200] Of the 380 million international tickets sold each year, IATA accounts for 300 million tickets.

[201] Linking up smaller airlines will be a more complex issue. SITA's Gabriel system will link over 160 small carriers, mostly in Asia and Africa. The Economist Executive Briefing, *New technologies promise to make air travel smoother for passengers and cut costs for beleaguered airlines*, March 11, 2005, online at: http://db.eiu.com/index.asp?layout=articleAv&doc_id=dms748120874&eiu_geography_id=&publication_type_id=&search=biometrics&date_restrict=&hits=25&starting last accessed on April 18, 2005.

[202] The Economist, *Change is in the air*, March 10, 2005, http://www.economist.com/research/articlesBySubject/displayStory.cfm?story_id=3713929&subjectid=348873 last accessed on April 17, 2005.

CUSS kiosks allow check-in only for one airline. There is a need for shared kiosks[203], which would improve customer satisfaction, and save money for the airlines. In the end, CUSS systems will incorporate security and immigration procedures, to eliminate the need to present the same documents repeatedly.

3.8.3 Radio frequency identification (RFID) for baggage[204]

Lost luggage has long been the bane of air travel. The campaign for airlines to adopt RFID, Radio Frequency Identification Devices, to track checked baggage is still in its infancy, as is the technology itself. RFID would cut the volume and cost of lost luggage, while the cost of RFID tags is certain to decline rapidly, to only a few cents each.[205] It is simply a matter for airlines to catch up with major retailers in terms of adapting the technology to their needs[206].

The type of technology to be adopted is under discussion, as between less costly "pre-printed" RFID, or more flexible "re-writable" RFID. The major advantage of "re-writable" RFID is that if more than one airline is involved, then

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[203] *Ibid.* SITA introduced for the first time in April 2004 at Toronto airport CUSS kiosks which can serve multiple airlines.

[204] Baggage RDIF represents the short term goal. In the long run, the use of this technique will be extended to cargo, catering and spare parts.

[205] Lost bags cost airlines $ 100 apiece or nearly $1 billion a year and lots of customer goodwill – The Economist, *Change is in the air*, March 10, 2005, online at http://www.economist.com/research/articlesBySubject/displayStory.cfm?story_id=3713929&subjectid=348873 last accessed on April 17, 2005. On the other hand, some sources estimate that the RFID tags would cost somewhere in the range of 25 cents each (see Airlines International, IATA, Issue 8/9 August/September 2004, 37). While this price is expected to go down, in the end, to as little as five cents per tag, it is however true that it does represent only part of the total cost of a tracking system. For further details on this matter please see http://www.iata.org/whatwedo/simplibiz/rfid/ last accessed on April 13, 2005.

[206] The success rate between bar code scanners and RFID readers is 85% and 99.9% respectively (Airlines International, IATA, Issue 8/9 August/September 2004, 30).

additional information can be added about the route for the luggage in question, information which then becomes easily available and accessible.

RFID will identify and trace baggage faster, reducing the amount of lost and mishandled baggage. Moreover, baggage will then be easily and quickly reconciled with the passenger list, allowing items to be quickly found and – if necessary – removed with minimum delay for the flight.

3.8.4 Bar coding for boarding passes

As the number of paper tickets diminishes, replacing magnetic stripes on boarding passes with bar codes seems the natural move forward[207]. An E-ticket[208] combined with a boarding pass will simply include a bar code with all the necessary information.

3.9 Automating systems – critical analysis

Simplifying passenger travel means faster departure procedures and controls, clearer information for access, adequate signage, more efficient check-in areas, more efficient security procedures, clear boarding information and adequate transboarding systems.

SPT, applied to border inspection and baggage claims, means that information on connecting flights is quickly and easily available, border inspection

[207] The bar code is also a much cheaper alternative for the airlines and it may encode much more data than the magnetic stripe, too.

[208] Passengers are thus able to check in and print their boarding passes at home.

services are more efficient, passengers retrieve baggage faster, departures and arrivals flow more smoothly.

Among stakeholders, airlines, airports and governments' border inspection services will all be able to reduce the cost of their respective services or duties. In the end, a portion of these cost savings could be passed on to passengers, who will also benefit, directly and immediately, from more convenient air travel. Travel agents and technology providers will benefit from increased business.

There is a long way to go in terms of putting the SPT initiative into practice. While full cooperation is required from all the partners in the project, the core of the initiative is the application of the international standards and recommended practices delineated in the Annex 9 of the Chicago Convention.

The next stage will be a pilot testing of the SPT system. The final goal is a one-stop check-in at airports[209]. The "one-stop" check-in will rely on a passenger "travel card", a "smart card" storing personal and machine readable biometric data, as well as visa information, where applicable.

One major barrier is the inefficient and archaic nature of the current border control system, which should incorporate commercially available technology to improve efficiency. Non-passenger stakeholders all need to cooperate effectively to implement changes. The legal aspects of data privacy need to be addressed, to conciliate the divergent interests of various stakeholder groups. Wealthy, security-focused governments will need to address the concerns of privacy advocates and less wealthy governments, to be able to implement the changes

[209] For additional details please see http://www.simplifying-travel.org/public/pub.php?id_page=4 last accessed on April 13, 2005.

they are seeking. In adopting biometric technology, various governments need to focus on adopting a solution that is mutually acceptable, in terms of cost and privacy, as well as actually *effective* in terms of living up to the claims made on behalf of it. A critical mass of governments will need to adopt the same technology for it to be effective. For the time being, the evidence suggests that facial recognition meets none of these tests.

3.10 Accessibility

Accessibility is a basic issue that needs to be addressed. Article 28 of the Chicago Convention indicates that states must provide adequate services to ensure the safe service of air navigation. States must "adopt and put into operation the appropriate standard systems of communications procedures, codes, marking, signals, lighting and other operational practices [...]" to ensure safe travel. These provisions are usually interpreted as referring to aircraft, and things like tarmac signage and lighting. *Mutatis mutandis,* they should also be applied to passengers, and the impact of indoor amenities at airports.

Obviously, such amenities include those appropriate for mobility-reduced passengers.[210] Both assistance and facilities adapted to minimize the impact of reduced mobility due to age, illness or other circumstances need to be provided.

International signage is also important, and requires steps such as:

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[210] Currently, the impediments for reduced mobility passengers are improper design and facilities adaptation, unspecific devices and improper training of staff. Additional factors, such as the reasons for increase of reduced mobility travelers and the adaptation of the transportation means, need proper attention and subsequent adjustment to the concrete reality.

- adoption of the use of graphic signs or pictograms *in lieu* of letters[211];
- adoption of standard symbols throughout airports;
- promotion of the use of identical signage for all transportation modes; and
- adoption of specific standards for security signs.

Signs need to be visible from a reasonable distance, which means avoiding obstruction and glare, as well as selecting proper sizes and developing high-contrast signs.

From personal experience, we would suggest that such measures would be more than welcome at Boston's Logan International Airport. En route from Montreal to New York, it was not possible to check in from Montreal until the final destination, New York. At Logan International, we were left in the middle of nowhere. Our connecting flight was due to depart fifty minutes after our arrival. There was absolutely no sign to indicate transfers, gates, or connections. As it turned out, the airport shuttle was the connection between terminals, but there was, again, no indication as to when the shuttle would arrive or how long it would take to connect to the transfer terminal. None of this information was available by any means other than waiting in line at the information desk. While Logan is an *International* airport, obviously no one seriously considered the plight of a first-time air traveler that spoke little or no English.

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[211] ICAO doc. 9636. Recommended practice 6.9 of Annex 9 also refers to international signage and urges states to implement such signs at the earliest.

Some authors are of the opinion that implementation of the SPT initiative would be achievable "in the near future, but only on a regional basis and for very specific air transport markets"[212], on the basis that most countries could not afford the costs of SPT[213]. We do however disagree with such a statement. The SPT initiative already has international support, and, properly implemented, SPT would *reduce* costs, and make better use of existing facilities, staff and resources[214]. Nevertheless, we agree with the distinguished author that such an initiative cannot and should not be brought under ICAO's hat. As a 188-member *political* body, ICAO lacks flexibility and the means to quickly respond to changes.

Summary

This chapter explained the technology and systems behind acronyms such as EDI (electronic data interchange), CRS (computerized reservation systems), ATB (advance ticket booking), API (advance passenger information), DCS (departure control systems), MRTD (machine readable travel documents), CUSS kiosks (Common Use Self Service kiosks), RFID (radio frequency

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[212] *Supra*, note 4 at 43.

[213] In a very surprising approach, Ethiopian Airlines have confirmed an order for five Boeing 787 Dreamliner (former B7E7), plus another five options. For an African nation obviously lacking the financial capabilities of a large airline, this order is not only a very interesting shift of strategy, but also a very pricy project! Royal Aeronautical Society, Aerospace International, Vol. 32 no. 3 March 2005, 6.

[214] For more details about the benefits of the SPT initiative go to http://www.iata.org/NR/ContentConnector/CS2000/Siteinterface/sites/whatwedo/file/SPT_Air_Passenger_Process.pdf last accessed on March 21, 2005.

identification devices), the StB program (Simplifying the Business) and the SPT program (Simplifying Passenger Travel). It defined and examined various biometric technologies, critically assessed their effectiveness and touched on the privacy concerns they raise.

Next Chapter will examine the impact of post-9/11 measures on facilitation, privacy and security. It will distinguish blacklisting and the "no-fly" list, and discuss the relationship between security and facilitation. Tightened security tends to restrain access, impose controls and slow processes down. While security and facilitation may be naturally in tension, there may be means to attain both objectives.

4. Facilitation *versus* Security

While terrorism on aircraft and at airports certainly predated 9/11, the impact of that single terrorist attack on the air travel environment is arguably greater than the impact of all previous attacks. The impact of anti-terrorism measures on air travel facilitation and air travel security cannot be effectively discussed without examining the impact of 9/11 at length. Yet not all the tension between air travel facilitation and air travel security is linked to terrorism, be it pre- or post- 9/11. It is instructive to consider the phenomenon of international drug trafficking, as an issue that that predated 9/11 and continues, and will always be a matter of concern.

4.1 Facilitation and drug trafficking

It is reasonably clear that the anti-drug trafficking measures put in place by border control programs at the world's airports are insufficient to stop more than a tiny percentage of the traffic in illegal drugs that flows through the world's airports. Cargo, baggage and passenger searches, whether at random or based on risk profiles, using human agents, canines and computer assisted spectrometer searches, do interdict a large amount of illegal drugs and drug traffickers, but this is almost certainly a small proportion of the overall volume. These searches also impose considerable delays on air travel, and create considerable costs.

None of the provisions of the Chicago Convention refer *expressis verbis* to drug trafficking, and the Chicago Convention does not *prima facie* tackle the illicit

transportation of narcotic drugs directly. Although Article 4 of the Chicago Convention provides that "[e]ach Contracting State agrees not to use civil aviation for any purpose inconsistent with the aims of th[e] Convention", this Article "is of no relevance to the problem of criminal use of civil aviation (such as drug trafficking)"[215]. However, Annex 9 does deal with this matter in the form of Recommended Practices.

ICAO Assembly Resolution A27-12[216] acknowledges that "drug abuse and illicit trafficking in narcotic drugs and psychotropic substances continue to create serious international problems demanding urgent and constant attention". It also "[u]rges the [ICAO] Council to continue its work in order to prevent illicit traffic of narcotic drugs and psychotropic substances by air".

However, Annex 17 of the Chicago Convention[217], states that, in order to minimize delays, "each contracting state should, whenever possible, arrange for the security measures and procedures to cause minimum interference with, or delay to, international civil aviation activity"[218].

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[215] Michael Milde, *Interception of civil aircraft vs. misuse of civil aviation*, Ann. of Air & Sp. L., Vol. XI, McGill University (1986), 105.

[216] A27-12: Role of ICAO in the suppression of illicit transport of narcotic drugs by air online at http://www.icao.int/cgi/goto_m.pl?/icao/en/site_map.htm last accessed on April 17, 2005.

[217] Annex 17 to the Convention on International Civil Aviation – Security – Safeguarding international civil aviation against acts of unlawful interference, ICAO Documents, Seventh Edition, April 2002. The "International Standards and Recommended Practices and the Security Manual were developed with urgent priority and are constantly modernized and updated". Michael Milde, *Chicago Convention at sixty – Stagnation or renaissance?*, Ann. of Air & Sp. L., Vol. XXIX, McGill University (2004), 459.

[218] *Ibid.*, Article 2.2.

All the security measures put in place have certainly had an impact on global drug trafficking. What is far from clear is the extent to which the impact of these measures is justified by the costs and delay they create. A clear answer to such a question is arguably impossible, because so much depends upon which costs to include in the equation, and how they are to be calculated. What is the cost of a twenty-minute delay imposed on one or two hundred passengers? How many minutes of passenger delay or lost dollars of airline profit are justified by interdicting one drug trafficker and a given amount of illicit drugs? Much depends on subjacent political questions about the extent of harm due to drug abuse and the importance of preventing it, or the importance of enforcing compliance with the criminal laws of particular states, irrespective of the harm or lack of it produced by the illicit drug trade.

4.2 The relation privacy – security

The comments presented above about the privacy implications of both private sector and government data mining are relevant here. Worldwide access to the Internet is growing steadily. An estimated of 800 million people had access to internet by September 2004[219]. There remain huge disparities between regions in terms of the number of Internet hosts, and users. Europe and North America as clearly lead, with 89% of all Internet hosts, while Africa represents a mere 0.25% of all Internet hosts[220].

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[219] See http://global-reach.biz/globstats/index.php3 last accessed on April 7, 2005.

[220] Understanding the digital divide, OECD http://www.oecd.org/dataoecd/38/57/1888451.pdf last accessed on April 7, 2005.

The codification of legal principles governing data privacy varies greatly from state to state.[221] Every enactment of a data privacy statute has to deal with the following issues, either explicitly, or by opting not to regulate them. Individuals and public or private organizations are often regulated in the following terms:

- an organization or individual is accountable for the personal information it possesses;
- the purposes for which personal information is processed must be identified by the organization or individual either before or at the time of their collection;
- the data subject must be aware of, and have agreed to, such personal information about him/her being collected – the knowledge and consent principles[222];
- personal information must be collected only to the extent it is necessary to pursue the identified purposes;
- personal information must not be used or disclosed for purposes other than those initially identified, and for which the consent of the data subject have already been obtained, unless such consent is obtained for the successive use or disclosure;

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[221] See also Organization for Economic Cooperation and Development (OECD) Guidelines on the Protection of Privacy and Transborder Flows of Personal Data online at http://www.oecd.org/document/18/0,2340,en_2649_34255_1815186_1_1_1_1,00.html last accessed on April 12, 2005.

[222] Exceptions do apply, however in very limited situations, such as for law enforcement.

- there must be a time frame for disposal or destruction of personal information;
- personal information must be accurate, complete and up-to-date, when necessary;
- personal information must be appropriately protected, according to its degree of sensitivity;
- an organization or individual's policies and practices in terms of data privacy must be transparent;
- data subjects must be granted full access to their personal information, while allowing them to make the necessary modifications should the data be inaccurate, incomplete or obsolete.[223]

Many states do not provide this full panoply of protection either *de jure* or in principle. Far fewer states effectively implement this protection and enable meaningful enforcement of such rights in practice. The U.S., often cited as the state that originally developed the concept of a "right to privacy", is notorious for the absence of effective protections in terms of personal data, outside certain limited domains, such as health information. In defense of those states that opt, deliberately or by mere omission, to provide such protections, it can easily be argued that such protections are logically of dubious effectiveness in many cases. Often, the "victim" of abuses of personal information will be totally unaware of what is going on and thus largely unable to do anything about it.

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[223] Colin Bennett and Charles D. Raab, *The Governance or Privacy – Policy instruments in global perspective*, Ashgate Publishing Limited, Hampshire, England, 2003 at 19.

However, "privacy is not an absolute right; it must be balanced against correlative rights and obligations to the community, and can be overridden by other important values and rights"[224]. Such balance is a continuous debate over the concepts of public and private, between the individual and the state.

Post-9/11, the privacy debate, at least in the U.S., "may now be greatly affected by the perceived need for increased information security and national priorities such as countering terrorism"[225]. To "what extent should the government be able to gather and mine information about individuals to aid the [so-called] war against terrorism?"[226] (However, we do find more appropriate to use the terminology 'fight against terrorism', instead of 'war against terrorism'.[227])

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[224] Colin Bennett and Charles D. Raab, *The Governance or Privacy – Policy instruments in global perspective*, Ashgate Publishing Limited (Hampshire, England, 2003) 19.

[225] John B. Kennedy, Paul M. Schwartz, *Privacy Law – New developments & issues in a security-conscious world – A satellite program* (Practicing Law Institute, New York, 2001) 9.

[226] Gina Marie Stevens, *Privacy – Total information awareness and latest developments*, Novinka Books New York, 2003, 7.

[227] Although outside the scope of this paper, we believe it is yet important to stress that one should be using the expression "fight against terrorism" and not "war against terrorism". We deem there could hardly be conceivable a "war" against a phenomenon – terrorism is a phenomenon. Moreover, a constitutive element of an armed conflict is the existences of belligerent parties to it – and how could such elements be identified in the case of a phenomenon? For these reasons, we prefer to use the expression "fight against terrorism", which we consider much more appropriate. For references on "fight against terrorism" versus "war against terrorism" please see also http://www.coe.int/T/E/Legal_affairs/Legal_co-operation/Fight_against_terrorism/, http://ue.eu.int/cms3_fo/showPage.asp?id=406&lang=en&mode=g, http://www.interpol.int/Public/Terrorism/default.asp,http://www.nato.int/terrorism/, http://www.icrc.org/web/eng/siteeng0.nsf/iwpList575/0F32B7E3BB38DD26C1256E8A0055F83E, last accessed on April 7, 2005.

The principle of proportionality requires that any measures taken to attain specific goals be adapted to specific aims, at least to the extent that they do not overlap with the exigency of public interest[228].

There is obviously a certain tension between privacy and community. This tension "exists in part because the community perceives a need to enforce social behavior and exercise social control"[229]. As one author noted, "while the social order may be regulated from above by the law, its foundation is built on norms and customs"[230].

There is a certain conflict between privacy and "other important values within the society, such as society's interest in free expression, preventing and punishing crime, protection of private property, and the efficient operation of government"[231]. One of the issues at stake is whether one perceives "the private sphere to be protected against the encroachment of the public or, on the contrary, [one regards] the public sphere of superior shared values to be fostered at the expense of the [...] private interests"[232].

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[228] Charles-Albert Morand, *Problèmes constitutionnels relatifs à la protection de la personnalité à l'égard des banques de données électroniques – Informatique et protection de la personnalité*, Éditions Universitaires Fribourg, Suisse 1981, 24.

[229] Philippa Strum, *Privacy – The debate in the United States since 1945*, Harcourt Brace College Publishers, Fort Worth, TX, USA 2003, 203.

[230] Steven A. Hetcher, *Norms in a wired world*, Cambridge University Press, USA, 2004, 306.

[231] Fred H. Cate, *Privacy in the information age*, Brookings Institution Press, Washington D.C. 1997, 102.

[232] Christopher T. Marsden, *Regulating the global information society*, Routledge, (London 2000), 46.

Regarding the benefit of the exemption from the data privacy provisions, "[a]ny data controller may be able to claim [such] benefit because it applies to any personal data where the exception is necessary for the purpose of securing national security"[233]. The problem, of course, is that "national security" is nebulous and undefined. It is easy to assert that "catching terrorists" justifies data mining. It is far more difficult to establish, of any *specific* data mining measure, targeting specific information from specific people, whether it is justified by the task of catching terrorists. Is an air traveler's psychiatric history of treatment for paranoia, religious delusions and suicidal ideation a justification for increased scrutiny? If so, is this a justification to scrutinize the psychiatric histories of any air travelers, on the ground that the dangerous ones cannot be put under surveillance if they cannot be identified first? If someone's credit history demonstrates a previous situation of financial desperation, recently remedied by a large payment from a group the government alleges is "connected" to radical Islamist activity, does it matter that a private company collected the information for lenders, while the government seeks to use it for "national security" surveillance? Does this justify regular scrutiny of all credit reports?

[233] Rosemary Jay and Angus Hamilton, *Data protection law and practice*, second edition, Sweet & Maxwell, London 2003, 365.

4.2.1 The European Union (EU)

The shift of information from cardboard files to computers makes the governments more efficient, as data can thus be stored, accessed and processed much more easily, in part because databases can be linked[234]. However, databases are as good as the information in them[235]. Where databases communicate with each other[236], any errors in one of them can be replicated throughout the system. The real danger lies not in small plastic cards but in the huge databases that they are linked to[237]. The most appropriate way "to deal with

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[234] The Economist, *Identity Cards / Dangerous data*, April 29, 2004 online at http://www.economist.com/agenda/PrinterFriendly.cfm/none/?Story_ID=2628978 last accessed on March 13, 2005.

[235] The increase of electronic "databases in public and private sectors, and the potential for cross-linking such databases, raise important issues as to the rights of privacy and the measures than can be taken to protect personal information". Moreover, "the interconnection of these databases [...] and ability of transmitting or accessing large amounts of information world-wide raises issues as to political sovereignty and economic decision-making which may have a major impact on the lives of citizens within any country." Dennis Campbell, *Law of international on-line business – A global perspective*, Sweet & Maxwell (London 1998) 6. See also J.R. Reidenberg, *Data protection law and the European Union's Directive: the challenge for the United States: setting standards for fair information practice in the US private sector*, 1995, 80 Iowa L. Rev. 497-498.

[236] "In an intelligent mission many different sources are used to verify each other. Several different sources indicating the same information make the original indication more reliable. Even though a majority of intelligence sources are clandestine, more and more information can be collected from public databases. The Internet for example contains a vast amount of information and, thanks to increasingly refined search engines, often specialized for intelligence work, more and more information can be gathered and compiled from public sources." Jonas Jeppsson, *The OECD cryptography policy guidelines and their implementation*, ICL Thesis, McGill University 2000, 53-54.

[237] Additionally, complex legal problems arise when the activities of data systems fall under the provisions of different jurisdictions. "The creation, operation, and use of global networks means that many different legal bodies and sets of laws can assert control over a single transaction, communication or network use." Jeffrey H. Matsuura, *A manager's guide to the law and economics of data networks*, Artech House Inc. MA, USA, 100.

the increasing power that databases give the government[238] is to balance it with commensurate power for citizens"[239].

While the consumer-credit laws in the United States, such as the federal *Fair Credit Reporting Act* [240], give individuals the right to examine their credit records and to demand corrections, the European Union Data Protection Directive 95/46/EC[241] goes a lot further, aiming to allow people more liberty to control their personal information which has been processed by private and public entities alike, while clearly requiring consent before a company or agency may process the data[242].

Currently, one major obstacle is lack of agreement with the United States. The U.S. refuses to pass a similar law, a position that has remained unchanged

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[238] "Supported by remarkable advances in the power and efficiencies of data handling and storage, data banks consisting of [...] refined information on individuals [...] now exist under the management of government[s]. In the absence of commensurate institutional and legal protections, [the latest technological] innovations could pose a major threat to the personal privacy of members of society – to their right to be left alone." David H. Flaherty, *Privacy and government data banks: an international perspective*, Mansell Publishing, London 1979, 19.

[239] See *supra*, note 232 at 69.

[240] On-line at: http://www.ftc.gov/os/statutes/fcra.htm last accessed on April 11, 2005.

[241] The Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data (http://europa.eu.int/comm/internal_market/privacy/docs/95-46-ce/dir1995-46_part1_en.pdf) came into force in 1998. For a complete overview on the EU legal frame in terms of data privacy please see http://europa.eu.int/comm/internal_market/privacy/law_en.htm last accessed on April 8, 2005.

[242] Amongst the first steps taken by the EU towards a unitary legal frame and to analyze the impact which technology has on the existing privacy legislation of the member states was the mandating in 1981 of the Committee of experts on data protection (CJ-PD) "to analyze the implications of certain of the new technologies for data protection". Council of Europe, *New technologies: a challenge to privacy protection?* Study prepared by the Committee of experts on data protection (CD-PJ) under the authority of the European Committee on Legal Co-operation (CDCJ), Strasbourg 1989, 6.

over the past decade[243]. In order to avoid a trade war on the issue, the European Union was forced to offer a "safe harbor" from legal action in the EU member states for American firms[244]. In return, the latter promised to guarantee the rights of the EU consumers.

Meantime, European airlines have no choice but to comply with the terms imposed by the U.S., which is has arrogated to itself the right to collect *34 types of data* from passengers' records and store the data for three and a half years. The European parliament, however, wants this entitlement to be limited to 19 fields of data and believes that proper safeguards should be introduced.

By the EU's endorsed accord, adopted in May 2004, airlines are "legally" required to hand over to US authorities extremely intrusive personal information, including credit card and email information, seen as "an essential tool to fight against terrorism"[245].

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[243] For details on the US regulation policy in terms of data privacy please see P. Samuelson, *A new kind of privacy? Regulating uses of personal data in the global information economy*, Book review of *Data privacy law, study of the United States data protection*, by P.M. Schwartz & J.R. Reinderberg (1999) 87 Cal. L. Rev. 751 at 763 and also H.H. Perritt Jr., *Law and the information superhighway*, Wiley Law Publications, (New York 1996) 144.

[244] "The effects of Directive 95/46/EC have also been felt outside the EU, particularly in the United States. This is due to a ban the EU places on transfer of personal data to any third country which does not ensure an adequate level or protection (i.e. protection similar to that set out in the directive). The European Commission originally took the view that this ban also applied to the United States, where data protection is largely left to self-regulation. However, a compromise was reached whereby the US Department of Commerce has issued so-called "Safe Harbor Principles", which largely follow the EU requirements." Quinten R. Kroes, *E-business law of the European Union*, Kluwer Law International 2003, 14.

[245] Raphael Minder, *EU to give air travelers' details to US*, FTWire May 18, 2004, http://db.eiu.com/index.asp?layout=articleAv&doc_id=dms547180454&eiu_geography_id=&publication_type_id=&search=data+privacy&date_restrict=&hits=25&starting=26 last accessed on April 17, 2005.

Prior to the agreement with the US, the EU airlines had found themselves in a difficult situation. They had the "choice" of either breaking EU privacy laws, or facing fines and possibly losing landing rights in the US. The EU Commission argued that doing anything but signing the accord with the US would have triggered "legal uncertainty and the potential withdrawal of US commitments to protect the data transferred - in others words chaos for EU passengers and airlines" [246]. It is worth noting, in passing, that the US extensively modified the *Fair Credit Reporting Act* [247] as part of the USA PATRIOT Act, an acronym for Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001[248].

4.2.2 The United States

Prior to 9/11 "the US Congress had conferred comprehensive jurisdiction on the D[epartment] O[f] T[ransportation][249] to regulate the screening of passengers and property, deal with threats to domestic and international civil

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[246] According to Frits Bolkestein, in Raphael Minder, *EU to give air travelers' details to US*, FTWire May 18, 2004, online at http://db.eiu.com/index.asp?layout=articleAv&doc_id=dms547180454&eiu_geography_id=&publication_type_id=&search=data+privacy&date_restrict=&hits=25&starting=26 last accessed on April 17, 2005.

[247] On-line at: http://www.ftc.gov/os/statutes/fcra.htm last accessed on April 11, 2005.

[248] USA PATRIOT Act of 2001, Pub. L. 107-56 online at http://www.epic.org/privacy/terrorism/hr3162.html last accessed on April 16, 2005.

[249] The United Stated Department of Transportation, [hereinafter *DOT*].

aviation, establish security standards at [...] airports [...] and foster an accelerated program of security research and development"[250].

Whether DOT's pre-9/11 measures were appropriate in the context at the time that they were taken, the labor force in charge of ensuring secure flights in US airspace was not adequately paid, trained or coordinated to respond to the kind of threat posed by the 9/11 hijackers.

In response to the terrorist attacks of September 11, 2001, the US passed the famous *USA PATRIOT Act.* The law enacted a wide variety of provisions, many oriented around eliminating restrictions on government information gathering and criminal procedure involving those suspected of terrorist affiliations, only 15 of which will expire in December 2005, unless renewed by the US Congress[251]. Civil liberties organizations have generally stated that the *USA PATRIOT Act* sacrificed personal privacy in favor of intrusive government, in the name of national security[252].

The US Congress then enacted the ***Aviation and Transportation Security Act*** (ATSA)[253]. ATSA "federalized" the function of air security. Prior to ATSA, Federal Aviation Administration (FAA) regulations governed this task. ATSA imposed "minimum job qualifications upon security employees, impos[ed]

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[250] Paul Stephen Dempsey, *Airline & airport security: Law as a deterrent to aerial terrorism*, Ann. of Air & Sp. L., Vol. XXVII, McGill University (2002), 167.

[251] CNN Online, *Attorney general defends Patriot Act*, Tuesday, April 5, 2005, online at http://edition.cnn.com/2005/POLITICS/04/05/patriot.act.ap/ last accessed on April 16, 2005.

[252] See also http://www.aclu.org/SafeandFree/SafeandFree.cfm?ID=11835&c=206 last accessed on April 16, 2005.

[253] *Aviation and Transportation Security Act*, Pub. L. 107-71 (19 November 2001).

background checks on airport employees, and requir[ed] impregnable cockpit doors"[254].

Probably the farthest-reaching post 9/11 statute was the ***Homeland Security Act*** (HSA)[255] of 2002, which established a new executive branch agency, the Department of Homeland Security (DHS). In setting up the DHS, "[the US] Congress consolidated twenty-two existing agencies that had combined budgets of approximately US$ 40 billion and employed 170,000 workers"[256]. The primary mission of the DHS is to "prevent terrorist attacks within the United States", "reduce the vulnerability [of the US] to terrorism", and "minimize the damage, and assist in the recovery, from terrorist attacks that do occur within the United States"[257].

A post 9/11 project involves the use of RFID-embedded passports, slated for summer 2005. "The embedded chips are meant to make passports work more like employee ID cards that can be passed over an electronic reader to gain access into a building."[258] Privacy advocates argued that as the RFID microchip would have a built-in antenna, and thus the information stored on it can

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[254] Paul Stephen Dempsey, *Airline & airport security: Law as a deterrent to aerial terrorism*, Ann. of Air & Sp. L., Vol. XXVII, McGill University (2002), 228.

[255] *Homeland Security Act of 2002*, Pub. L. 107-296 online at http://www.dhs.gov/interweb/assetlibrary/hr_5005_enr.pdf last accessed on April 16, 2005.

[256] *Supra*, note 250 at 237.

[257] *Homeland Security Act of 2002*, Pub. L. 107-296, Sec. 101 (b) (1) (A) to (C) http://www.dhs.gov/interweb/assetlibrary/hr_5005_enr.pdf last accessed on April 16, 2005.

[258] Sara Kehaulani Goo, *Sensors and detection – Privacy advocates criticize plan to embed ID chips in passports*, Sunday, April 3, 2005, online at http://homelandsecurity.osu.edu/focusareas/sensors.html last accessed on April 18, 2005.

read from distance, it would enable terrorists equipped with an RFID receiver to identify and target US citizens at a distance. In reply to these concerns, the US government pointed at the fact that the chip could only be read at a few inches distance, making it makes impossible to identify someone at a distance[259].

One program, which appears to be functioning to a certain extent,[260] is the US Visitor and Immigration Status Indicator Technology (US-VISIT)[261]. The second phase of this project, expanded at US airports, is meant to facilitate travel across US borders and "enhance the integrity of [the] immigration system"[262]. The US-VISIT system uses biometrics to "clear" travelers, who are supposed to use self-service kiosks that will provide a slip once the passenger has submitted a photograph and a digital fingerprint. The slip will then be used at the departure gate to confirm that the traveler has complied with the procedure. The system has been already in use at some US airports for incoming passengers. For departing passengers, there is a pilot program, currently under development.

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[259] For technical details about the microchip please see *Philips' smart card chip for e-government smart passport projects is industry's first to achieve highest security certification,* online at http://www.semiconductors.philips.com/news/content/file_1099.html last accessed on April 18, 2005.

[260] Lou Dobbs, CNN Online, *US-VISIT falls short*, Tuesday, March 29, 2005, online at http://edition.cnn.com/2005/US/03/28/visit.program/ last accessed on April 18, 2005.

[261] Kerry Ezard, *US-VISIT exit trials are behind schedule*, March 31, 2005 online www.rati.com - Air Transport Intelligence news.

[262] See DHS online at http://www.dhs.gov/dhspublic/interapp/content_multi_image/content_multi_image_0006.xml last accessed on April 18, 2005.

In 2004, the ***Transportation Security Administration*** (TSA)[263] enforced an order that would compel 77 airlines to provide names, addresses and other information collected through carriers' reservation systems for domestic travel[264].

The passenger records thus collected were compared with a centralized security "watch list", compiled by federal law enforcement, intelligence and security agencies. In some circumstances, names and other information were to be compared with private databases used by banks, mortgage and credit agencies to ensure that identities given to airlines are consistent with commercial records.

Security regulators moved forward and pushed for the implementation of the new *"Secure Flight"* program, due in summer 2005. This latest effort to process personal information replaces some of the elements of the *Computer Assisted Passenger Prescreening System II (CAPPS II),* a US$ 100 million initiative from spring 2004, in part due to challenges by privacy advocates, and some members of the Congress "that it was too broad and poorly thought out". The TSA has stated that access to passenger information will be restricted to its personnel and the private contractors in charge with the project. *Secure Flight* is a "modified version" of the earlier program, based on a "thorough review of CAPPS II" [265]. The first version of the CAPPS program – *CAPPS I* – came under

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[263] Transportation Security Administration (TSA) http://www.tsa.gov/public/index.jsp last accessed on March 13, 2005, [hereinafter *TSA*].

[264] AirWise.com - *US wants personal data on airline passengers.* September 21, 2004 online at http://news.airwise.com/stories/2004/09/1095798281.html last accessed on March 13, 2005.

[265] See ATWOnline.com – *TSA to replace CAPPS II with secure flight,* http://www.atwonline.com/archives/news/archive_news_aug2304.cfm last accessed on March 13,

fire from the 9/11 Commission for having failed to prevent the 2001 attacks and was replaced by the CAPPS II program.

Under *Secure Flight*, the TSA will take over responsibility from the airlines for comparing PNR data of domestic air passengers to "a greatly expanded list of known of suspected terrorists in the Terrorist Screening Center database." [266]

Officially, the Secure Flight is supposed to streamline the passenger screening, and lower the number of travelers selected for a secondary security check from the current 15% to 5%[267].

However, there is no plan in place to dispose of the personal information. Neither are nine of the ten conditions that the US Congress imposed to give the "green light" to the implementation of *Secure Flight* program. For this to happen, a government department called the Government Accountability Office[268] must first acknowledge that appropriate privacy protection is offered[269].

The security benefits of this myriad of computer screening systems are questionable. There is no guarantee that potential terrorists will opt to select

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2005; Kerry Ezard, *US TSA to "revise" CAPPS II program*, Air Transport Intelligence news July 15, 2004.

[266] *Ibid.*

[267] Darren Shannon, *US TSA to launch 'Secure Flight' screening program in November*, Air Transport Intelligence news August 26, 2004.

[268] CNN.com, *GAO concerns at passenger screening program – Concern about traveler's privacy could delay implementation*, Tuesday, March 29, 2005 online at http://edition.cnn.com/2005/US/03/28/secure.flight.ap/ last accessed on April 18, 2005; Kerry Ezard, *US watchdog says new screening program is missing targets*, Air Transport Intelligence news March 28, 2005.

[269] In a late development which points though at the "success" of the TSA in its mission to protect the US transportation system, TSA head stepped down – the third to do so in as many years. See AirWise News April 8, 2005 – *TSA head to step down*, online at http://news.airwise.com/story/view/1112988658.html last accessed on April 18, 2005.

someone with a documented track record of terrorist connections to carry out an attack. It is far from clear that background profiling – ethnic, religious or otherwise – will meaningfully assist in interdicting a terrorist.

The primary beneficiary of such extensive screening, and the requirement for a visa to merely transit through a US airport, is likely to be United States' Northern neighbor. Canada is expected to take advantage of a shift in the travel behavior or passengers that used to fly via the US. Travelers *en route* between Asia, Europe and South America that would otherwise have transferred in New York or Los Angeles may well prefer Vancouver or Toronto, where there are no comparable requirements[270].

4.3 A Post-9/11 Perspective

On September 11, 2001, four wide-body aircraft have been unlawfully seized and used as weapons against carefully chosen targets in the United States. Three of them attained their targets – the Twin-towers in New York and the Pentagon – while a fourth, which may have targeted either the White House or the Capitol building, crashed into the ground apparently following an attempt by passengers to regain control of the plane from terrorists.

With over 3,000 victims, 9/11 was "the worst single man-made disaster in the US history and the first direct hostile attack on US territory since Pearl

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[270] CBC News, *Air Canada to benefit from US visa requirement: analyst*, Monday, February 7, 2005, online at http://www.cbc.ca/story/canada/national/2005/02/06/aircanada-international050206.html last accessed on April 17, 2005. It is thus estimated that Air Canada alone could make a gain of US$ 350 million out of this 'lucky' occasion.

Harbor"[271]. As in 1941, the 2001 attack triggered an immediate answer from the United States; just that in the latter case the "enemy" was "invisible" thus we can no longer talk about a "war"[272].

An unprecedented grounding of all civil air traffic was imposed within one hour of the attack. Hundreds of aircraft were instructed to turn around or land in Canada. Wall Street suspended all transactions for four days, the second longest forced closure in history[273].

As pointed out by Professor Dr. Michael Milde[274], "[f]or the first time the word 'terrorism' was openly used in the UN and ICAO discussion – a term avoided so far due to the lack of a political consensus on the meaning of 'terrorism'."

In our view, "terrorism" can be understood to encompass any indiscriminate violence, perpetrated with the direct intent of affecting social or political stability by means of shocking the public. There does not need to be a

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[271] Michael Milde, *Aviation safety and security – legal management*, Ann. of Air & Sp. L., Vol. XXIX, McGill University (2004), 7. On December 7, 1941, Japanese fighters launched an attack on the US fleet stationed at Peal Harbor. ***First result***: 2,388 casualties, 164 US aircraft destroyed and another 159 aircraft damaged (figures from *Pearl Harbor remembered* online at http://my.execpc.com/~dschaaf/pearl2.html, last accessed on April 15, 2005. ***Second consequence***: the United States entered World War II.

[272] See also *supra*, note 227.

[273] The longest was after World War I. See Diane Brady, *The day Wall Street went back to work*, BusinessWeek Online at http://www.businessweek.com/bwdaily/dnflash/sep2001/nf20010918_3327.htm last accessed on April 21, 2005.

[274] *Supra*, note 271 at 8.

lawfully vested authority that the act of violence is intended to undermine[275]. Unlawful interference with civil aviation may occur anywhere, anytime[276].

September 11, 2001 clearly demonstrated that pre-9/11 passenger screening was inadequate. Arguably, it may still be lacking[277].

Clumsy enforcement of stringent post-9/11 security measures has lead to many complaints, and civil suits brought by individuals who insist that they have been incorrectly identified as "threats to civil aviation"— considerably delayed, subject to thorough checks, or even banned from flying, while also being left with virtually no means to challenge the "charges".

Should this kind of response be the right answer to safety and security difficulties? We trust the correct answer is: *NO.*

4.4 Blacklisting and the "No-Fly" List

Surprisingly, there is no extant legal definition of a *passenger.* A *passenger* is generally understood to be a person who travels based on a contract of carriage, concluded with the operator of the respective flight.

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[275] According to Oxford dictionary, ***terrorist*** is "a person who uses violence and intimidation in the pursuit of political aims" online at http://www.askoxford.com/results/?view=dict&field-12668446=terrorism&branch=13842570&textsearchtype=exact&sortorder=score%2Cname last accessed on April 15, 2005. In the Central Intelligence Agency's interpretation (as per Title 22 of the US Code, Section 2656f(d)), ***terrorism*** represents "premeditated, politically motivated violence perpetrated against noncombatant targets by subnational groups or clandestine agents, usually intended to influence an audience" (http://www.cia.gov/terrorism/faqs.html last accessed on April 15, 2005).

[276] It should also "be recognized that the security of the global international aviation is only as strong as the weakest link in the security systems". *Supra*, note 271 at 9.

[277] See *supra*, note 271 at 13-15.

According to the ICAO Statistics Division[278], the term *passenger* also encompasses air travelers that use "publicly available promotional offers or loyalty programs (for example, redemption of frequent flyer programs); passengers traveling as compensation for denied boarding; passengers traveling at corporate discounts; [as well as] passengers traveling on preferential fares"[279]. ICAO's definition does not encompass "persons traveling free; persons traveling at a fare or discount available only to employees of air carriers or their agents or only for travel on the business of the carriers; and infants who do not occupy a seat"[280].

In our view, one should also exclude from the definition anyone on a flight that is security personnel (e.g. sky marshals).

4.4.1 Blacklisting

While the number of incidents involving unruly passengers[281] has been growing, so has the (yet unofficial) demand for a centralized database of the names of such persons[282].

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[278] See ICAO, *Report of the ninth session of the Statistics Division*, ICAO Doc. 9703 (STA/9) (1997) 7 (see Recommendation 1 as cited in R. I. R., *Aviation and social responsibility – Rights of the passenger*, Ann. of Air & Sp. L., Vol. XXVII, McGill University (2002), 30.

[279] R. I. R., *Aviation and social responsibility – Rights of the passenger*, Ann. of Air & Sp. L., Vol. XXVII, McGill University (2002), 30.

[280] *Ibid.*

[281] For an in-depth view on this matter please see Christian Giesecke, *Unruly passengers: The existing legal system and proposed improvements*, Ann. of Air & Sp. L., Vol. XXVI, McGill University (2001), 45-75.

[282] See also Christian Giesecke, *Unruly passengers and passenger rights*, Institute of Air and Space Law, LL.M. Thesis, McGill University 2001, 94.

IATA Recommended Practice 1724 provides, in Article 7, under the "right to refuse carriage", that such an action may be taken when (1) it "is necessary in order to comply with any applicable government laws, regulations or orders", or (2) when "the carriage of [the person] or [his/her] baggage may endanger the safety, health, comfort or convenience of other passengers or crew, as well as (3) when the person's physical or mental state may present a hazard or risk to the person him/herself, to passengers, to crew or to property"[283].

However, a Recommended Practice is *per se* non-binding. The above-mentioned practice reflects a contractual position, allowing airlines[284] to unilaterally asses whether a certain person may pose a safety or security risk to the flight. Each airline may depart from the IATA guidelines, however many airlines have simply adopted the IATA recommendations *as is*.

One relevant aspect in the "blacklisting" equation is that under many national legal systems, airlines are "common carriers". They are providing a public service *in rem*, if their co-contracting party has fulfilled his/her obligations (e.g. has bought a ticket and has a valid travel document and the necessary visa, if applicable).

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[283] See also *Working document on IATA Recommended practice 1774 Protection for privacy and transborder data flows of personal data in international air transport of passengers and cargo* online at http://europa.eu.int/comm/internal_market/privacy/docs/wpdocs/2001/wp49en.pdf September 2001 last accessed on April 9, 2005.

[284] "Blacklisting of unruly persons is not confined to airlines, but is also used by ferry companies and football stadiums." IATA, *Comments on Air passenger rights in the European Union*, http://www.iata.org/NR/ContentConnector/CS2000/Siteinterface/sites/mgr/file/GPcomfinal.pdf, Geneva, March 2000, last accessed on April 17, 2005.

According to Article 13 (2) of the Universal Declaration of Human Rights[285] and Article 12 (2) of the International Covenant on Civil and Political Rights[286], the *right to travel* and *the right to exit the country* are "guaranteed". Restrictions to these rights must be expressly stipulated by the law[287] and such a restriction "must be necessary to protect national security, public order, public health or morals or the rights and freedoms of others and has to be consistent with the other rights recognized in the ICCPR"[288].

"Blacklisting" would seem to be permitted only where expressly provided for by law. One could argue that such a practice is justified by the need to protect the right to life and security of the person of other passengers. Denying boarding to a person, absent such legal grounds, should be considered abusive.

While the restrictions airlines may impose on the travel of certain persons by blacklisting them may affect the respective individuals when no alternative means of transportation are available[289], they prove to be far less reaching than

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[285] Universal Declaration of Human Rights online at http://www.un.org/Overview/rights.html last accessed on April 12, 2005, [hereinafter *UDHR*].

[286] International Covenant on Civil and Political Rights online at http://www.unhchr.ch/html/menu3/b/a_ccpr.htm last accessed on April 12, 2005, [hereinafter *ICCPR*].

[287] Articles 12 (3) and 13 of the ICCPR.

[288] Christian Giesecke, *Unruly passengers and passenger rights*, Institute of Air and Space Law, LL.M. Thesis, McGill University 2001, 97.

[289] See also J. Balfour & O. Highley, *Disruptive passengers: the Civil Aviation (Amendment) Act1996 Strikes Black"*, Ann. Air & Sp. L. 1997, 194 as well as *supra*, note 288 at 97.

the fearsome and almost "*uncanny*" Unites States' directory called the "no-fly" list[290].

4.4.2 The "No-Fly" List

The "no-fly" list "is just one of 12 terrorist and criminal watch lists maintained by the federal government" of the US[291]. Created in 1990 by the FBI, and later administered by the Federal Aviation Administration, the "no-fly" list contains the names of people considered "to pose a direct threat to US civil aviation"[292]. Nevertheless, the way the list is set up remains obscure[293].

Interestingly, Senator (D) Ted Kennedy was stopped on two different occasions, on the basis that his name appeared on the so-called "no-fly" list. It was then explained that his name was *similar* to that of an individual on the watch list. On an even more "dramatic" note, at one point fighters were scrambled to intercept a Washington-bound plane that was diverted— because

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[290] In addition to the "no fly" list there is also a "selectee" list, where the people who's names appear on it will be subject to more intense border check. See also *Documents show errors in TSA's "no fly" watchlist,* Electronic Privacy Information Center online at http://writ.corporate.findlaw.com/ramasastry/20040413.html last accessed on April 17, 2005.

[291] Anita Ramasastry, *A new ACLU [American Civil Liberties Union] lawsuit challenges "no fly" and "selectee" list procedures: do these government watch lists violate due process?* http://writ.corporate.findlaw.com/ramasastry/20040413.html last accessed on April 13, 2005.

[292] *Ibid.*

[293] Also, the procedure of removing a name from the list in order to make a correction if a mistake was made proves to be a real dare. No clear guidance appears to exist in this respect and no progress has been made to date regardless of the weight of the issue at stake. See also CNN online, *Review: 'No fly list' lacks rules, procedure – Watch list meant to stop terrorists from flying is under scrutiny*, Monday, October 11, 2004, online at http://edition.cnn.com/2004/US/10/10/terror.watch.list/ last accessed on April 13, 2005.

Yusuf Islam, formerly known as the singer Cat Stevens, appeared on the "no-fly" list and was on board the flight[294].

Yet, an incident which took place on April 8, 2005 deserves more analysis. In an unprecedented development, the United States barred a KLM flight bound for Mexico from entering the US air space[295]. The reason: two of the passengers' names on the KLM flight apparently matched those of two people on the US "no-fly" list.

The KLM flight was only supposed to overfly the United States, and the passengers' names – which, for security reasons, have not been revealed – did not appear on any European or Dutch watchlists.

The KLM Boeing 747, carrying 278 people and 17 horses, was already in *Canadian* air space when asked to turn around. Normally, airlines are asked to make sure that the passengers they are carrying when flying to and from the United States are not on the "no-fly" list. Nonetheless, no such check was ever required for *overflying* US territory.

4.5 Extraterritoriality Issues in the Current Global Aviation Context

The KLM flight mentioned above raises the issues of the potential extraterritorial effect of US laws.

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[294] Sara Kehaulani Goo, *Cat Stevens Held After D.C. Flight Diverted* online at http://www.washingtonpost.com/wp-dyn/articles/A39772-2004Sep21.html, last accessed on April 7, 2005.

[295] See AirWise News online, *KLM plane denied access to US*, Thursday, April 11, online at http://news.airwise.com/story/view/1113187332.html last accessed on April 13, 2005; Jeanne Meserve and Mike M. Ahlers, CNN.com, Monday, April 11, 2005, *KLM incident raises security questions – Homeland Security considers emergency amendment*, online at http://www.cnn.com/2005/US/04/11/klm.flight/ last accessed on April 13, 2005.

The declaration of a senior DHS official last November, that airlines' practice of forwarding the list of passengers for US-bound flights 15 minutes after the departure of the aircraft "doesn't do a whole lot of good [...] after the flight has taken off" has lead to considerable debate[296]. The DHS wanted to have full PNR information in hand 60 or 45 minutes *before* departure. It may make sense, at first glance, to have the information as early as possible – if verifications indicate a "match" to a watch list, then an aircraft could be refused entry in the US air space. However, the reality is that sending ***full*** PNR data one hour ahead of the effective departure is virtually impossible— all the passengers would have to have boarded at least an hour before take off. Moreover, last-minute passengers would then have to be "closed off" and denied boarding.

The final decision of the US Department of Homeland Security on April 7, 2005 left intact the requirement that airlines must forward the passenger manifest information to the US customs *no later than 15 minutes after the departure* of the aircraft[297]. The DHS decision did not take into account the request from the airlines to correlate the duration of the flight with the reporting period. Crew manifests need must be sent to the US border authorities one hour prior to departure. While the Customs and Border Protection Bureau claimed that "relaxing the time requirements would delay security checks" and that "failure to obtain timely approval may result in possible denial of flight clearance or

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[296] See AirWise News, *Passengers face longer check-in under US plan*, November 12, 2004 online at http://news.airwise.com/stories/2004/11/1100212675.html last accessed on April 17, 2005.

[297] AirWise News, April 7, 2005 *US keeps security rules on passenger lists*, online at http://news.airwise.com/story/view/1112907944.html last accessed on April 18, 2005.

diversion of the flight to another [airport], as appropriate"[298], the rationale and benefits of the current procedure are dubious.

The rules imposed by any national authority have to take into account the impact of compliance on air passengers and airlines. While the US indubitably has the right to protect its national security, and those flying into or out of the US, or using US airspace have an obligation to comply with US rules, the rules need to be well thought out, and cannot simply be implemented with only one concern in mind and no consideration for the practical impact in the vast majority of cases in which there is no credible threat to security whatsoever. It is fairly clear that the current exclusively security-oriented measures by US authorities have a direct, negative impact on facilitation.

We believe that United States have perhaps gone a little too far by meddling with the flight plan. The downside is, however, that the consequences of non-compliance (including also here the delays in communication of passenger information) with the requirements of the US authorities, however justified the reasons may be, would translate into fines and even denial of entry in the US air space. It appears to be no *law of gravity* applying here. Bottom line is that the airlines flying to/via the US are faced with a sole "*choice*": take it or leave it.

In today's aviation world where the key words are "de-formalization of the procedures" and "facilitation of travel", the United States appear to be doing the exact opposite.

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[298] AirWise News, April 7, 2005 *US keeps security rules on passenger lists*, online at http://news.airwise.com/story/view/1112907944.html last accessed on April 18, 2005.

Summary

It should be obvious that neither privacy nor national security are absolute rights that should be interpreted to override any other considerations. Obviously, the right to life and security has to take precedence over the right to privacy where there is a credible threat to life and security for airline passengers. The extent, to which governments, or airlines acting at their behest, should be permitted to investigate airline passengers' personal data when no credible threat has been identified, is far less obvious.

In Chapter 4, we presented the two rather antagonistic perspectives over data privacy – the US and the European. We also indicated the distinction between unruly-passenger blacklisting and the "no-fly" list and critiqued the rationale underlying each.

The treatment of the KAL flight by the US authorities, indicates the extent to which the US, in particular, is prepared to sacrifice other interests in the name of security.

5 Conclusions – The "price" for a secure trip

With the increasing growth in the number of flights and passengers alike on the one hand, and the infrastructure lagging way behind the needs of the industry on the other hand, there is a tremendous pressure to reconcile the need for speed (facilitation) with the need for security. The implementation of automating systems, the system integration and standardization will play a decisive role in the 'battle' between security and facilitation. It became clear today that, although great efforts are being made to cut down delays generated by aging equipment and under-staffed air traffic control centers, the solution lies yet on the ground; and it does not fly!

From the authorities' perspective, the increase in the air traffic generated great budget concerns. The governments are faced with the dilemma of distributing crippled budgets to many areas, from education, to health and security.

But how much money should authorities spend on security? The key is to wisely spend the money budgeted for security reasons, in order to maximize the efficiency of the measures taken and thus the effectiveness of the resources used. Another solution is to shift resources from 'low-risk' passengers to 'normal-risk' passengers. The latter category includes passengers that *may* present a certain degree of risk – normal risk.

There is a need for faster and more efficient detection equipment on the airports. The catch is that the better the screening equipment, the longer it will take to 'clear' the passengers.

We should note however that a lot more important is to reduce the waiting time at pre-boarding, rather than at arrivals. This is because in most cases (the US excepted) passengers do not have to be 'cleared' when connecting flights. Whereas passengers remaining at the arriving airports could 'afford' to wait a little longer, passengers checking-in stand the chance to miss their flights in case they encounter significant delays due to security checks.

There are for sure more questions raised than answers that can be offered. Are we indeed safer and more secure now in the air? Is this "security" worth the hassle and the time spent going through customs? Will the current initiatives in the aviation industry be enough to streamline facilitation? Will we feel that our privacy is indeed protected and that our life as an open book is a "normal" evolutionary step?

As we highlighted above, at the end of the day it seems to be rather a question of how many rights a passenger would give in, than how many rights a passenger has. However, passengers are likely to accept giving in rights for what they perceive to be more than just an 'appearance' of security. As in the case of biometrics, the "easy way" may be to emphasize on the benefits this technology can offer in identifying terrorists and crooks, as well as in preventing the identity "theft". A major advantage will be less time spent by travelers at airports. However, all these benefits should be clearly explained to passengers.

Last but not least, one should note that the more time passengers will have after completing the pre-boarding formalities, the more money these will spend on the airports, too!

BIBLIOGRAPHY

Legislation

European Union

Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications)
http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_201/l_20120020731en00370047.pdf

Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data
http://europa.eu.int/comm/internal_market/privacy/docs/95-46-ce/dir1995-46_part1_en.pdf

United States

Aviation and Transportation Security Act, Pub. L. 107-71

Homeland Security Act of 2002, Pub. L. 107-296
http://www.dhs.gov/interweb/assetlibrary/hr_5005_enr.pdf

Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (USA PATRIOT Act of 2001), Pub. L. 107-56
http://www.epic.org/privacy/terrorism/hr3162.html

Government and organizational sources

Central Intelligence Agency
http://www.cia.gov/

Citizenship and Immigration Canada
http://www.cic.gc.ca/english/visit/api.html

Council of Europe
http://www.coe.int/T/E/Legal_affairs/Legal_co-operation/Fight_against_terrorism/

Federal Aviation Administration
http://www.faa.gov/

Infocomm Development Authority (IDA) Singapore
http://www.ida.gov.sg/idaweb/techdev/infopage.jsp?infopagecategory=articles:techdev&versionid=4&infopageid=I2913

International Civil Aviation Organization (ICAO)
http://www.icao.int/

Interpol
http://www.interpol.int/Public/Terrorism/default.asp

North Atlantic Treaty Organization
http://www.nato.int/terrorism/

Transport Canada
http://www.tc.gc.ca/en/menu.htm

Transportation Security Administration
http://www.tsa.gov/public/index.jsp

US Department of Homeland Security
http://www.dhs.gov/dhspublic/index.jsp

US Department of Transportation
http://www.dot.gov/

World Health Organization
http://www.who.int/en/

International Instruments

Amendment 19 to the International Standards and Recommended Practices – Facilitation

Annex 17 to the Convention on International Civil Aviation – Security – Safeguarding international civil aviation against acts of unlawful interference, ICAO Documents, Seventh Edition, April 2002

Annex 9 to the Chicago Convention of 1949, March 25, 1945

Convention on the International Civil Aviation, 7 December 1944, ICAO Doc. 7300/6 also online at http://airsafety.com.au/chicconv.htm

International Covenant on Civil and Political Rights online at http://www.unhchr.ch/html/menu3/b/a_ccpr.htm

Machine Readable Travel Documents – Technical Report – PKI for Machine Readable Travel Documents offering ICC Read-only Access, Version 1.1, October 1, 2004, ICAO, online at http://www.icao.int/mrtd/download/documents/TR-PKI%20mrtds%20ICC%20read-only%20access%20v1_1.pdf

Organization for Economic Cooperation and Development (OECD) Guidelines on the Protection of Privacy and Transborder Flows of Personal Data http://www.oecd.org/document/18/0,2340,en_2649_34255_1815186_1_1_1_1,00.html

Recommendations of the Council Concerning Guidelines Governing the Protection of Privacy and Transborder Flows of Personal Data, Doc. OECD 58 Final (1980)

Report of the ninth session of the Statistics Division, ICAO Doc. 9703 (STA/9) 1997

Report of the twelfth session, ICAO Doc 9838, FAL/12 (2004)

United Nations Directories for Electronic Data Interchange for Administration, Commerce and Transport http://www.unece.org/trade/untdid/d04b/trmd/paxlst_c.htm

Universal Declaration of Human Rights online at http://www.un.org/Overview/rights.html

Secondary Sources: Monographs

Bennett, Colin and Raab, Charles D., *The Governance or Privacy – Policy instruments in global perspective*, Ashgate Publishing Limited, Hampshire, England, 2003

Bennett, Colin John, *Regulating Privacy: data protection and public policy in Europe and the United States,* Ithaca: Cornell University Press 1992.

Campbell, Dennis, *Law of international on-line business – A global perspective*, Sweet & Maxwell (London 1998).

Cate, Fred H., *Privacy in the information age*, Brookings Institution Press, Washington D.C. 1997.

Edwards, Lilian and Waelde, Charlotte, *Law and the Internet: a framework for electronic commerce*, Oxford: Hart Publishing, 2000

Fischer, Roland, *Time sensitivity of passengers and market structure in the airline industry: a model of air transport*, Bern, New York 1997

Flaherty, David H., *Privacy and government data banks: an international perspective*, Mansell Publishing, London 1979.

Hetcher, Steven A. *Norms in a wired world*, Cambridge University Press, USA, 2004

Jay, Rosemary and Hamilton, Angus, *Data protection law and practice*, second edition, Sweet & Maxwell, London 2003

Kennedy, John B., Schwartz, Paul M., *Privacy Law – New developments & issues in a security-conscious world – A satellite program* (Practicing Law Institute, New York, 2001)

Kroes, Quinten R., *E-business law of the European Union*, Kluwer Law International 2003

Marsden, Christopher T., *Regulating the global information society*, Routledge, (London 2000).

Matsuura, Jeffrey H., *A manager's guide to the law and economics of data networks*, Artech House Inc. MA, USA, 2000

Morand, Charles-Albert, *Problèmes constitutionnels relatifs à la protection de la personnalité à l'égard des banques de données électroniques – Informatique et protection de la personnalité*, Éditions Universitaires Fribourg, Suisse 1981.

Perritt Jr., Henry H., *Law and the information superhighway*, Wiley Law Publications, (New York 1996)

Reinisch, August, *International organizations before national courts*, Cambridge University Press, UK, 2000.

Stevens, Gina Marie, *Privacy – Total information awareness and latest developments*, Novinka Books New York, 2003.

Strum, Philippa, *Privacy – The debate in the United States since 1945*, Harcourt Brace College Publishers, Fort Worth, TX, USA 2003

Woodward Jr., John D., *Identifying law & policy concerns*, in A. Jain, R. Bolle & S. Pankanti, *Biometrics: personal identification in networked society,* Kluwer Academic Publishers, Boston 1999

Secondary Sources: Articles

Abeyratne, R. I. R., *Attacks on America – Privacy implications of heightened security measures in the United States, Europe and Canada*, 67 J. Air L. & Com. 84 (2002).

Abeyratne, R. I. R., *Aviation and social responsibility – Rights of the passenger*, Ann. of Air & Sp. L., Vol. XXVII, McGill University 2002

Abeyratne, R. I. R., *Facilitation and the ICAO role – a prologue to the nineties*, XV Ann. Air & Sp. L., McGill University 1990

Abeyratne, R. I. R., *Funding an international financial facility for aviation safety*, Ann. of Air & Sp. L., Vol. XXVII, McGill University 2002

Abeyratne, R. I. R., *The development of the machine readable passport and visa and the legal rights of the data subject*, Ann. of Air & Sp. L., Vol. XVII part II, McGill University 1992

AirWise News April 8, 2005 – *TSA head to step down* http://news.airwise.com/story/view/1112988658.html

AirWise News online April 11, 2005 – *Amadeus Sale Worth EUR600 Million To Iberia* http://news.airwise.com/story/view/1113238897.html

AirWise News online April 7, 2005 – *US keeps security rules on passenger lists* http://news.airwise.com/story/view/1112907944.html

AirWise News online April 8, 2005 – *Lufthansa Says Amadeus Deal Worth EUR170 Million* http://news.airwise.com/story/view/1112988960.html

AirWise News online September 21, 2004 – *US wants personal data on airline passengers* http://news.airwise.com/stories/2004/09/1095798281.html

ATWOnline.com August 23, 2004 – *TSA to replace CAPPS II with secure flight* http://www.atwonline.com/archives/news/archive_news_aug2304.cfm

Balfour, J. & Highley, O., *Disruptive passengers: the Civil Aviation (Amendment) Act1996 Strikes Black"*, Ann. Air & Sp. L., McGill University 1997

BBC.co.uk online, *Concord – the last goodbye* http://www.bbc.co.uk/manchester/features/concorde/views/concorde_views.shtml

Brady, Diane, *The day Wall Street went back to work*, BusinessWeek Online at http://www.businessweek.com/bwdaily/dnflash/sep2001/nf20010918_3327.htm

CBC News online, *Air Canada to benefit from US visa requirement: analyst*, Monday, February 7, 2005, online at http://www.cbc.ca/story/canada/national/2005/02/06/aircanada-international050206.html

CBC News, Monday, April 4, 2005, *World's airlines to lose $5.5B US this year: IATA* http://www.cbc.ca/story/business/national/2005/04/04/airlines-050404.html

Chrystal, Philip; Fok, Marcel; Martino, Ferdinando; Shirai, Shinji; Peter, Andreas F., *The true value of aviation insurance*, Swiss Re Publications 10/2004.

CNN online, *Attorney general defends Patriot Act*, Tuesday, April 5, 2005, http://edition.cnn.com/2005/POLITICS/04/05/patriot.act.ap/

CNN online, *Review: 'No fly list' lacks rules, procedure – Watch list meant to stop terrorists from flying is under scrutiny*, Monday, October 11, 2004, http://edition.cnn.com/2004/US/10/10/terror.watch.list/

Council of Europe, *New technologies: a challenge to privacy protection?* Study prepared by the Committee of experts on data protection (CD-PJ) under the authority of the European Committee on Legal Co-operation (CDCJ), Strasbourg 1989.

Dempsey, Paul Stephen, *Airline & airport security: Law as a deterrent to aerial terrorism*, Ann. of Air & Sp. L., Vol. XXVII, McGill University 2002

Dobbs, Lou, CNN Online, *US-VISIT falls short*, Tuesday, March 29, 2005, http://edition.cnn.com/2005/US/03/28/visit.program/

Ducrest, J., *Legislative and quasi-legislative functions of ICAO: towards improved efficiency*, XX:I Ann. Air & Sp. L., McGill University 1995

Electronic Privacy Information Center, *Documents show errors in TSA's "no fly" watchlist* http://writ.corporate.findlaw.com/ramasastry/20040413.html

Ezard, Kerry, *First US carriers to implement Secure Flight in late spring 2005*, Air Transport Intelligence news December 1, 2004.

Ezard, Kerry, *US DHS wants passenger data one hour before takeoff*, Air Transport Intelligence news February 25, 2005

Ezard, Kerry, *US TSA to "revise" CAPPS II program*, Air Transport Intelligence news July 15, 2004.

Ezard, Kerry, *US watchdog says new screening program is missing targets*, Air Transport Intelligence news March 28, 2005.

Ezard, Kerry, *US-VISIT exit trials are behind schedule*, March 31, 2005 online www.rati.com - Air Transport Intelligence news

Flint, Perry, *Air Transport World*, ATWOnline, January 2005 http://www.atwonline.com/channels/dataAirlineEconomics/article.html?articleID=1143

Gaggi, Massimo, *L'america e la privacy minacciata da un microchip*, Corriere della Sera, Friday, February 23, 2005

Giesecke, Christian, *Unruly passengers: The existing legal system and proposed improvements*, Ann. of Air & Sp. L., Vol. XXVI, McGill University 2001

ICAO, Aims and Objectives of ICAO in the field of Facilitation, ICAO Doc. 7891-C/908, cited in B. Cheng, *Studies in International Space Law* (Oxford: Clarendon Press 1997).

Interview with Jean-Peter Hansen, CEO Lufthansa, in Airlines International, IATA, Issue 8/9 August/September 2004.

Kehaulani Goo, Sara, *Cat Stevens Held After D.C. Flight Diverted*, online at http://www.washingtonpost.com/wp-dyn/articles/A39772-2004Sep21.html

Kehaulani Goo, Sara, *Sensors and detection – Privacy advocates criticize plan to embed ID chips in passports*, Sunday, April 3, 2005, http://homelandsecurity.osu.edu/focusareas/sensors.html

Kubosova, Lucia, *Europeans ask for more time on biometric passports*, EU Observer online, March 30, 2005 http://euobserver.com/?aid=18753&rk=1

Kubosova, Lucia, *US 'unlikely' to put off deadline on biometric passports*, EU Observer online, April 1, 2005 http://euobserver.com/?aid=18771

Mahony, Honor, *MEPs up in arms about data privacy law*, EU Observer online, May 4, 2005, http://euobserver.com/?aid=19003&sid=9

Meller, Paul, *Europe's air travelers may face higher fares* – The International Herald Tribune, Saturday, March 26, 2005.

Meserve, Jeanne and Ahlers, Mike M., CNN.com, Monday, April 11, 2005, *KLM incident raises security questions – Homeland Security considers emergency amendment*, http://www.cnn.com/2005/US/04/11/klm.flight/

Milde, Michael, *Aviation safety and security – legal management*, Ann. of Air & Sp. L., Vol. XXIX, McGill University 2004

Milde, Michael, *Aviation safety oversight: audits and the law*, Ann. of Air & Sp. L., Vol. XXIV, McGill University 2001

Milde, Michael, *Chicago Convention at sixty – Stagnation or renaissance?*, Ann. of Air & Sp. L., Vol. XXIX, McGill University 2004

Milde, Michael, *Interception of civil aircraft vs. misuse of civil aviation*, Ann. of Air & Sp. L., Vol. XI, McGill University 1986

Minder, Raphael, *EU to give air travelers' details to US*, FTWire May 18, 2004, http://db.eiu.com/index.asp?layout=articleAv&doc_id=dms547180454&eiu_geography_id=&publication_type_id=&search=data+privacy&date_restrict=&hits=25&starting=26

Multispectral Spoof Detection / Current Efforts http://www.biometrics.org/bc2004/Presentations/Conference/2%20Tuesday%20September%2021/Tue_Ballroom%20B/3%20Technology%20Solns/Rowe_update.pdf

Ramasastry, Anita, *A new ACLU lawsuit challenges "no fly" and "selectee" list procedures: do these government watch lists violate due process?* http://writ.corporate.findlaw.com/ramasastry/20040413.html

Reidenberg, J.R., *Data protection law and the European Union's Directive: the challenge for the United States: setting standards for fair information practice in the US private sector*, 1995, 80 Iowa L. Rev.

Samuelson, P., *A new kind of privacy? Regulating uses of personal data in the global information economy*, Book review of *Data privacy law, study of the United States data protection*, by P.M. Schwartz & J.R. Reinderberg (1999) 87 Cal. L. Rev.

Shannon, Darren, *US TSA to launch 'Secure Flight' screening program in November*, Air Transport Intelligence news August 26, 2004.

SITA report in Royal Aeronautical Society, Aerospace International, Vol. 32 no. 3 March 2005.

Sobie, Brendan, *Auckland Airport prepares for Emirates A380 service*, March 3, 2005, www.rati.com - Air Transport Intelligence news

Swiss Reinsurance Company Zurich, *Who is in control? The world aircraft operations on the ground and in the air*, 4/97.

The Economist – *Biometrics / Prepare to be scanned* December 4, 2003
http://www.economist.com/agenda/PrinterFriendly.cfm/none/?Story_ID=2246191

The Economist – *Identity Cards / Dangerous data* April 29, 2004
http://www.economist.com/agenda/PrinterFriendly.cfm/none/?Story_ID=2628978

The Economist – *No hiding place.* January 23, 2003
http://www.economist.com/agenda/PrinterFriendly.cfm/none/?Story_ID=1534283

The Economist – *Security technology / Watching you.* September 20, 2001
http://www.economist.com/agenda/PrinterFriendly.cfm/none/?Story_ID=787987

The Economist Executive Briefing, *New technologies promise to make air travel smoother for passengers and cut costs for beleaguered airlines*, March 11, 2005, online at
http://db.eiu.com/index.asp?layout=articleAv&doc_id=dms748120874&eiu_geography_id=&publication_type_id=&search=biometrics&date_restrict=&hits=25&starting

The Economist, *Change is in the air*, March 10, 2005, http://www.economist.com/research/articlesBySubject/displayStory.cfm?story_id=3713929&subjectid=348873

Understanding the digital divide, OECD
http://www.oecd.org/dataoecd/38/57/1888451.pdf

Williams, Frances, *Homeland security is in the eye of the passport holder*, FTWire October 14, 2004,
http://db.eiu.com/index.asp?layout=articleAv&doc_id=dms827681082&eiu_geography_id=&publication_type_id=&search=biometrics&date_restrict=&hits=25&starting

Working document on IATA Recommended practice 1774 Protection for privacy and transborder data flows of personal data in international air

transport of passengers and cargo
http://europa.eu.int/comm/internal_market/privacy/docs/wpdocs/2001/wp49en.pdf

Thesis

Addy, Naa Adoley, *Deregulation, health, safety and security*, LL.M. thesis the Institute of Air and Space Law, McGill University 2002.

Banerjea-Brodeur, Nicolas Paul, *Advance passenger information / passenger name record: privacy rights and security awareness*, (LL.M. Thesis, Institute of Air and Space Law, McGill University, August 2004).

Cortés, Aguilar, Air carrier liability and automation issues, (LL.M. Thesis, Institute of Air and Space Law, McGill University, August 2002).

Geoffroy, Marion, *La sécurité du transport aérien européen: aspects institutionnels et juridiques*, LL.M. Thesis, Institute of Air and Space Law, McGill University, 2000.

Giesecke, Christian, *Unruly passengers and passenger rights*, Institute of Air and Space Law, LL.M. Thesis, McGill University 2001.

Herman, Thierry, *Les systèmes informatises de réservation, cadre légal et perspectives d'avenir*, (LL.M. Thesis, Institute of Air and Space Law, McGill University, March 1998).

Jeppsson, Jonas, *The OECD cryptography policy guidelines and their implementation*, ICL Thesis, McGill University 2000.

Piera, Alejandro J., *Automation in Facilitation of Air Transport* (LL.M. Thesis, Institute of Air and Space Law, McGill University, August 2000).

Poget, Gael, *Legal aspects of facilitation in civil aviation: health issues* (LL.M. Thesis, Institute of Air and Space Law, McGill University, August 2003).

Zur Hausen, Henning – *CRS regulations and the GATS,* (LL.M. Thesis, Institute of Air and Space Law, McGill University, October 1994).

Other Internet (World Wide Web) sources

http://www.aclu.org/SafeandFree/SafeandFree.cfm?ID=11835&c=206

http://www.airbus.com/product/a380_backgrounder.asp

http://www.airport-technology.com/projects/shanghai/

http://www.amadeus.com/index.jsp

http://www.angel-investor-news.com/ART_Biometric.htm

http://www.aopa.org/special/newsroom/facts.html

http://www.asce.org/reportcard/2005/page.cfm?id=21#airport

http://www.askoxford.com/results/?view=dict&field-12668446=terrorism&branch=13842570&textsearchtype=exact&sortorder=score%2Cname

http://www.aspcan.ca/index_section1_lien3.html

http://www.atwonline.com/indexfull.cfm?newsid=4559

http://www.biometricgroup.com/

http://www.boeing.com/commercial/7e7/background.html

http://www.cnn.com/2005/TRAVEL/03/30/aviation.accidents.ap/

http://www.commercialaviationtoday.com/

http://www.eurocontrol.int/corporate/public/standard_page/cb_society_and_economics.html

http://www.galileo.com/emea/uk/index.htm

http://www.global-reach.biz/globstats/index.php3

http://www.iata.org/pressroom/industry_stats/2003-04-10-01.htm

http://www.icrc.org/web/eng/siteeng0.nsf/iwpList575/0F32B7E3BB38DD26C1256E8A0055F83E

http://www.my.execpc.com/~dschaaf/pearl2.html

http://www.sabreairlinesolutions.com/

http://www.semiconductors.philips.com/news/content/file_1099.html

http://www.simplifying-travel.org/public/pub.php?id_page=1

http://www.sita.aero/News_Centre/Corporate_profile/default.htm

http://www.tatainfotech.com/industry/transportation/airlines/departure.htm

http://www.time.com/time/photoessays/aftershock/7.html

http://www.ue.eu.int/cms3_fo/showPage.asp?id=406&lang=en&mode=g

http://www.unisys.com/transportation/solutions/airports/local__departure__control/

http://www.worldspan.com/home.asp?fPageID=5

Other sources

Black's law dictionary, 8th edition, Thomson – West, US, 2004.

Personal notes to Prof. Dr. Michael Milde's class – Public International Air Law class, IASL 2003-4.

Personal notes to Prof. Dr. Paul Dempsey's class – Public International Air Law class, IASL 2003-4.

Personal notes to the presentation of Tom Murphy (SVP IDFS IATA) on *IATA Simplifying the Business* given at the IATA headquarters in Montreal, November 2004.