
CONTEST'ing Chicago origins and reflections: *lest we forget!*

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Abstract: This year marks the 70th anniversary of the Chicago Convention; recognising this, this paper focuses on the origins and incentives behind the Chicago Convention. The convention identifies the role of international civil aviation as a means to '*preserve friendship and understanding among the nations and peoples of the world*'. Yet, it is acknowledged that '*its abuse can become a threat to the general security*'. Commentary is given on the historical roots of air law and the challenges faced by aviation as a result of such abuse. Also considered is the continuous battle between national sovereignty, security, trade and technological developments. The paper identifies contemporary and future security threats, questioning how prepared is the industry and how much has been learnt from historical events. It is concluded that the aviation framework remains fragmented and that without further uniformity there will remain unnecessary vulnerability and risk '*to peoples of the world*'.

Keywords: international air law; risk; security; terrorism; air transport policy and regulation; aviation security; airline strategy; management; operations.

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1 Introduction

This year, 2014, sees the 70th anniversary of the Convention on International Civil Aviation in Chicago (commonly referred to as the Chicago Convention). On 7 December 1944, the Chicago Convention was adopted and today still remains the primary source of public international air law. The Convention came into force on 4 April 1947, together with a new organisation called the International Civil Aviation Organization (ICAO).

The Convention in Chicago came prior to the end of the Second World War (WW II: 1939–1945) a war that had seen the death and destruction on a scale and over a global distance never previously imagined. Reports show differing death tolls of between 50 to

72 million people who lost their lives as a consequence of WW II. Yet, one of the most destructive events occurred after the signing of the Chicago Convention on 6, August 1945, in Japan, when an atomic bomb flattened the city of Hiroshima killing tens of thousands of civilians. Three days later there was a similar attack on Nagasaki.¹

WWII was instrumental in developing aviation technology, which was viewed as a tactical and strategic means to deliver mass destruction. The 'flying fortress' was a multi-engine bomber that delivered heavy increased capacity over longer distances than had previously occurred. Jet-powered fighters were introduced before the end of the war, a pre indicator of the potential that the jet engine would bring to commercial services.

WWII may have heralded the accelerated development of the aircraft but it also showed the potential use of such, as a weapon of destruction. And yet, it was to air transport that nations turned as a means to re-establish links as a cost-effective means to replace destroyed road and rail links. Milde² identifies that air transport was viewed as an 'urgent priority' as the war drew to an anticipated conclusion. What had been a 'strategic weapon' soon became a means of salvation.

This paper focuses on the origins and the incentives behind the Chicago Convention. It provides commentary on the historical roots of air law and reviews the modern day use of aircraft for unlawful means. The paper comments on the continuous battle between national sovereignty, security, trade and technological developments. The paper questions the means to respond to contemporary and future security threats, asking how prepared and united is the industry?

WWII was on a scale previously never envisaged, and the same was virtually said in reaction to 9/11 and the forecasting of such a catastrophic event. In the 70 years since the Chicago Convention the world has changed, and yet, the 'unimagined' seems to keep happening. Should we really be surprised? Or, better prepared? If it is not possible to 'prevent', should governments not take a concerted means to 'protect' by having a unified and/or legislative approaches in place in order to respond.... and respond efficiently and effectively to envisaged events?

The research design is based upon a mixed methods/cross-disciplinary approach, commencing with the evolution of air law and revisiting key events that shook the world, such as Pan American flight 103 (Lockerbie), 9/11 and the recent disappearance of flight MH370. The similarities, the differences and the lessons learnt are all discussed in relation to these incidents and the development of related areas of international aviation law (aimed at security) are considered.

2 International air law and war

2.1 Coining a phrase

Milde³ identifies that the term 'air law' is actually controversial and argues that it is imprecise; and, more accurately, it should be referred to as 'aeronautical law'. However, the use of this term is attributed largely to Professor Ernest Nys (of Brussels University) in 1902 and it remains a phrase that collectively covers many branches of law relating to aviation. It was just over 110 years ago that the Wright Brothers flew their heavier-than-air machine and so, in terms of other transport modes, aviation is still in its

infancy but like other transport modes, aviation concerns other law areas, such as administration, labour law, private law and criminal law, etc.

In terms of human involvement and activity, there is probably no other area comparable to international aviation that would produce such a vast spectrum of conflict of laws and jurisdiction. Aviation crosses boundaries both physical and in terms of complexity. A unified system ultimately is the only way to minimise conflicts by seeking to replace disparity regarding jurisdiction and substantive law whilst providing transparency and clarifying obligations and mutual rights.⁴ The problem is that International law is subject to the political will of States. In reality, States decide whether or not to enter into international treaties under the international custom that is then accepted as law. However, as Milde⁵ makes reference to, law is a dynamic discipline, much in the same way as the aviation industry is,⁶ and both need to reflect the changing needs and requirements of society, which is often viewed at odds with the political will or protectionism of governments.

2.2 Vulnerability and exposure

The legal discipline tends to be responsive rather than pro-active and it is especially so in terms of air law, which was not considered until transport moved into this dimension.

One of the early discussions and considerations related to who actually owns the air. Historically this precedes aircraft and is therefore linked to property rights – the air space above land. A doctoral thesis attributed to Johannes Stephan Dancko⁷ commented that the air actually belongs to everyone but added that the Duke (in the context of the dissertation) had inherent rights. This is clearly an indicator of the sovereignty issues that has been linked to both individual landowners and the sovereign rights of a State.

The late 18th century is attributed to the first manned experiment of flight. Less than one year later, in 1784, there is evidence that a French lieutenant issued the first directive, to the effect that a balloon must not be operated within Paris, without first seeking police approval. In this instance, there was foresight as to the possible consequences of a basic device, which was at the mercy of the wind, both in terms of the risks to the operators and to those on the ground. This was a pro-active response aimed at particularly protecting third parties on the ground and their property.

Progress and development saw hot air balloons being filled with hydrogen and dirigibles and air ships being developed and flown.

In 1903 the Wright brothers achieved their short flight at Kitty Hawk, North Carolina; and, in 1909, Louis Bleriot crossed the English Channel, covering 38 km. In less than six years, physical advancement of aircraft design and capabilities had been astounding. Yet, there is little evidence of the policy and legislative elements being considered at the same rate, certainly there is little evidence during the period since the French officer issued his directive until the beginning of the 20th century. Yet, this is despite the fact that balloons had been used in military wars since the end of the 18th century. There had been a prohibition relating to the discharging projectiles from balloons as a consequence of the 1899 First International Peace Conference, but this was a temporary prohibition for a period of five years.

The crossing of the English Channel revealed the vulnerability of England, which was no longer viewed as an island. Dr. Pepin, the first Director of the Legal Bureau of ICAO, (International Civil Aviation Organization⁸) identified that Bleriot did not even carry with him his passport. From a British perspective the passport had been in existence since the reign of Henry V in the form of a 'safe conduct' document. The UK Government website⁹ identifies that the Privy Council granted passports from at least 1,540 and the National Archives shows records of 'passes' issued by Secretaries of State from 1,674 for people travelling into and out of Britain (including lists of Persons Emigrating to the USA and other places as well as records of 'foreigners' arriving in Britain since the 13th century). However, the registers refer to '*Licences to Pass beyond the seas*', which is far from surprising given the relative short history and existence of the aircraft. From a security perspective the 'pass' has been identified as being instrumental in foiling and detecting assassination attempts way back in history. Lloyd¹⁰ refers to the linkage of the 'pass' travel document with the attempted assassination of Napoleon III by Count Felice Orsini in Paris. Orsini had entered France in 1858 by impersonating the holder of a British issued one. However, the series of events and the aftermath were to have even more serious consequences, leading to the fall of the British Government of the day and a change to the issuing system for the passport – travel document forever. No more could one state issue a passport, which claimed to have the authority to identify the holder as a national of another State.

It is therefore unsurprising that the flight of Bleriot raised concerns as to the vulnerability from air, both in terms of an air attack and as a means to landing upon British soil without a record.

States continually feared the crossing of boundaries for 'espionage' purposes and there is evidence of countries shooting down foreign military balloons who had crossed into their airspace in the early 20th century. Cooper¹¹ identifies that in 1908, at least ten German balloons crossed from Germany into France. A year later a conference was held in France that sought to formulate principles of air law.

2.3 The evolutionary response and developments pre 1944

2.3.1 The 1910 Paris International Air Navigation Conference

The Paris Conference was the first diplomatic meeting to formulate principles of law relating to air navigation. And, although it is referred to as an international conference, by the very limitations, States from outside of Europe could not attend and were not invited due to the geographical limitations of aircraft. The views of other continents were obtained via extensive questionnaires, although Russia was present during the Conference.

The issue of the legal status of the air space was intentionally avoided and the Conference did not result in an international convention, but it was notable, inasmuch as it addressed several key issues, which would be significant in future regulation of international air navigation. Fifty-five draft articles and two annexes were formulated and covered aspects such as nationality of aircraft, their registration, certification of airworthiness, licensing of the flight crew, rules of the air and customs procedures as well as other significant areas which are now to be found in the Chicago Convention. Milde¹² comments that this represented 'very respectable progress' as it recognised the need for 'uniform international rules on aviation'.

The early Conference did acknowledge that States could declare prohibited zones and that cabotage should be confined to national aircraft. There was disagreement however, concerning the overflying of national territory, with Germany and France advocating wide privileges and equality of freedoms for foreign aircraft, whilst Great Britain, Austria-Hungary and Russia emphasised the need for sovereign rights, identifying national security and protection of their citizens as a basis for this protectionism. Ironically, the conference was due to reconvene but the 1914–1918 war interrupted this event and the process of cooperation. At the time Germany enjoyed military advantage due to the technical advancement in their Zeppelins and other dirigibles development.

In 1912, legal scholars attempted to further discuss the freedoms of the air at the 27th Conference of the International Law Association (ILA), which was again held in Paris. However, no agreement could be reached.

World War I (WWI) resulted in significant advancement in aviation technology. Aircraft were used as a new weapon, although more from a reconnaissance perspective at first, before the development into an armed fighter aircraft.

This war is frequently referred to as '*the war to end all wars*', and, if it had been, it would be interesting to consider the rate of aviation advancement given that the WWII would not have occurred.

President Woodrow Wilson's '*Peace without Victory*' speech to Congress¹³ (22 January 1917) referred to several interesting aspects connected to the freedom of travel and equality:

- Firstly, he referred to the fact that, “[t]he equality of nations upon which peace must be founded if it is to last must be an equality of rights”. He clarified his rationale and continued by referring to the sea.
- Secondly, he reinforced his belief that, “the paths of the sea must alike in law and in fact be free. The freedom of the seas is the sine qua non of peace, equality, and cooperation”.
- He referred to “a somewhat radical reconsideration of many of the rules of international practice hitherto thought to be established may be necessary in order to make the seas indeed free and common in practically all circumstances for the use of mankind....”
- He stated that there was compelling reasons for advocating and securing “the freedom of the seas”, which could be achieved “*if the governments of the world sincerely desire[d] to come to an agreement concerning it*”.

President Wilson's speech, although concerning freedom of passage of the sea, spoke of liberalisation and equality of access; and yet, on the European continent States fought to protect the air space above their territory, reinforcing the concept of air space and aviation with sovereign control.

However, less than two and a half months later President Wilson appeared back before Congress, seeking permission to declare war on Germany and the freedom of air was again to be ever strongly linked to protecting State security.

2.3.2 *The Paris Peace Conference – 1919*

The Paris Peace Conference formally ended WWI and led to the eventual drawing up of the League of Nations. Wilson staunchly supported the idea of a League to maintain world peace. As Milde¹⁴ eloquently states, the Paris Convention shared the fate of the entire ‘Versailles’ peace system. Most notably because the USA failed to ratify the Versailles Treaty and join the League of Nations, which inevitably weakened the League. History tends to identify a conflict of political approaches in the USA between the visionary Wilson and the Republican leader of the Senate, Henry Cabot Lodge, who was particularly critical of Wilson’s single contribution to the draft covenant Article X of the League of Nations.¹⁵ This was instrumental in identifying once more that without conformity by States there becomes a disparity of practice; it, also, particularly highlighted the political aspect which was to dominate aviation.

One important aspect of the Conference had been to determine the conditions that were to be applied to Germany; and, in particular, the limitations that were to be applied to German aviation. Subsequently an Aeronautical Commission was formed which had its origins in the Inter-Allied Aviation Committee created in 1917. Over a period of seven months the Commission drew up a Convention Relating to the Regulation of Aerial Navigation that was signed by 27 States on 13 October 1919.¹⁶

The Convention was the first multilateral instrument of international law relating to air navigation and, although no longer in force, it laid the very foundations for the Chicago Convention, whilst, also importantly, formulating the principles of the domestic law of the contracting States. It should be noted that the contracting States granted themselves freedom of innocent passage, during times of peace.

The very first article ended decades of academic discussion as to whether the air space was ‘free’, like the high seas or whether it was part of the sovereign territory of the State.

Article 1, stated:

“The High Contracting Parties recognise that *every Power* has complete and exclusive sovereignty over the air space above its territory.”

As international law is based upon recognition of existing practices¹⁷ State Sovereignty in this instance, was formally recognised by a codified instrument relating to an observed practice by States, which had only been possible for a period of two decades. The reference to ‘every Power’ indicates that this principle is applicable to all States, regardless of whether they are Parties to the Convention or not.

One other notable area to comment on at the Paris Convention was the establishment of the *Commission internationale de la navigation aeriennne* (CINA).¹⁸ This was a permanent body under the direction of the League of Nations. One of the duties of CINA was to amend Annexes of the Convention, which referred amongst, other areas, to the nationality and registration of aircraft, certificates of airworthiness, etc. The ‘Annexes’ were to allow flexibility, although still having the same legal force as the Convention.

2.3.3 *From Paris to Chicago*

There were to be two other notable Conventions between 1919 and 1944, the Madrid Convention – 1926 and the Havana Convention – 1928. The latter Convention is no

longer in force¹⁹ and the Madrid Convention never came into force; however, both are worthy of comment, particularly the latter one which was instrumental in addressing technical and operational aspects of aviation, later to be addressed by the Chicago Convention.

The Madrid Convention once again demonstrated the close links to politics and State rivalry, which recognises the value of aviation as a powerful tool. It was motivated by conflicts between Spain, CINA and the League of Nations and the attempt was to create an 'Ibero-American Air Navigation Convention' as a means for Spain to postulate dominance in Latin America. In essence, it replicated exactly the text of the 1919 Paris Convention and perhaps was an indicator of the instability in Spain that eventually resulted in the Spanish Civil War (1936–1939).²⁰ This war again saw aircraft being used as an instrumental means to assert power and deploy an army ready for battle. During the first two months of the war, approximately 10,500 men were flown from Morocco, across the Straits of Gibraltar back to Spain by the German Luftwaffe.

The Havana Convention was a further attempt to codify air law on a regional basis, this time by the Commercial Aviation Commission of the Pan-American Union. It attracted 16 States and the Union was supported by the USA, which, along with the majority of American States, had not signed the earlier 1919 Paris Convention. It became known as the *Convention on Commercial Aviation – Havana Convention 1928*. Stadlmeier²¹ points to the fact that the Convention was a 'strikingly modern document', which addressed areas that the earlier Paris Convention and the surviving Chicago Convention were reluctant to address. There is no doubt that it was very liberal in its approach, advocating a more borderless system and leaving the aspect of traffic rights and routes to bilateral and multilateral negotiations. In essence, the practicalities of the approach would have led to the granting of the '*five freedoms of the air*'.

In many ways, it has often been viewed as inspiring the concept of 'open skies' and free competition of air transport services.

2.4 Reforms and Chicago!

Despite being billed as '*the war to end all wars*' the world was drawn into a second war from 1939 until 1945. During this period the name 'United Nations (UN)' was first referred to by President Franklin D. Roosevelt, in the Declaration by UN 1 January 1942, when the representatives from 26 nations pledged support to continue fighting together against the Axis powers.

During a conference held at Dumbarton Oaks in Washington, D.C. the blue-print for the UN was subsequently discussed and from 21 September 1944 through to the 7 October 1944 the USA, the UK, the USSR and China discussed the aims, structure and functioning of the new world organisation.

In 1945, representatives of 50 countries met in San Francisco at the UN Conference on International Organisation to draw up the UN Charter on the basis of the earlier meeting. The Charter was signed on 26 June 1945 by the representatives of the 50 countries. The UN officially came into existence on 24 October 1945.

Article 1.1 states that one of the founding principles and purposes is 'peace', namely the intention to:

“To *maintain international peace and security*, and to that end: to take effective *collective measures for the prevention and removal of threats to the peace*, and for the suppression of acts of aggression or other breaches of the peace, and to bring about by peaceful means, and *in conformity with the principles of justice and international law, adjustment or settlement of international disputes or situations* which might lead to a breach of the peace.....”

Running parallel to the talks to establish a UN organisation, was recognition to amend the political and out-dated framework to accommodate aviation as a developing and modern means of transport. Plesser²² identifies that before the end of the war the importance of aviation was recognised and that a series of discussions occurred from 1942 onwards between Canada, the USA and the UK, which later saw other States joining in with the formulation of post-war plans. Although in 1944 the war took a turn for the worse it soon became evident that the time was rapidly approaching when nations would want to initiate new international air services on a regular commercial basis. On 11 September 1944 the US President extended an invite to 54 nations to meet in Chicago from 1 November to 7 December 1944.

2.5 *The windy city – blows hot and cold!*

In total, 52 nations attended the conference, with Saudi Arabia and the Soviet Union not accepting the invite. Denmark and Thailand attended as observers. It is acknowledged that the non-attendance of the Soviet Union was regarded as a ‘huge disappointment’ and a potential early indicator of the mistrust that was to lead to the ‘cold war’.²³

There have been numerous commentaries as to the success and compromises that eventually led to the Convention on International Civil Aviation. In essence, there were noticeable differences in the approaches of States as to the balance between free competition and national protectionism in air transport services with deep rooted philosophies traceable back to war-time conflicts and collapsing dominance, such as the British colonial empire. Whereas, the USA supported liberalism and free competition, the UK was opposed – supported notably by Canada. The US expressed the opinion that ‘the air and use of the sea were highways given by nature to all men’.²⁴

It was only private talks and diplomacy, which achieved a compromise solution and led to Chicago not ending in failure. The level of achievement is questionable, as the stumbling blocks concerned trade issues related to the depth of cooperation and competition that States would agree and the freedom of access to the air above the States, related to the issue of Sovereignty and protectionism. The Convention lay silent in terms of traffic rights in international scheduled carriage by air; and, instead, two distinct instruments were introduced which concerned the exchange of rights on a reciprocal basis, known as ‘*Freedoms of the Air*’.

The Conference led to the preparation and adoption of the following instruments:

- The Convention on International Civil Aviation.²⁵
- The International Air Services Transit Agreement.
- The International Air Transport Agreement.
- The Standard Form that was to be the proposed standard for bilateral agreements concerning the exchange of air routes, as a means to achieve consistency.

- An Interim Agreement on International Civil Aviation that was to bridge the gap before the entry into force of the Convention and saw the *Provisional Civil Aviation Organization* (PICAO) being established as an interim body.
- Drafts of technical Annexes relating to operational and technical issues of civil aviation.

PICAO functioned from 6 June 1945 until 4 April 1947 pending the ratification of the Convention by 26 States.²⁶ On 5 March 1947, the 26th ratification was received and in October 1947 ICAO became a specialised agency of the UN.

2.5.1 *Developments and origins*

Currently²⁷ there are 191 State signatories recorded as having ratified or notified adherence with the Convention and 130 to the Air Services Transit Agreement.²⁸ Although there was a steady increase in signatories in the 20th century there has only been minimal additions in the current century. However, in contrast, the International Air Transport Agreement only has 11 signatories with the last recorded one being in 1968. In many ways, the differing number of signatories (also in terms of the difference re full ratification of notified adherence) typifies the inconsistencies in terms of a fully unified front and standardised approach to international aviation and the differing multilateral air law treaties.

The Chicago Convention is a document of two segments. The first part relates to the exhaustive codification and unification of public international law, which see the replacement of the 1919 Paris Convention and the 1928 Havana Convention. The second part is the constitutional instrument of the ICAO.

Since 1947 there have been numerous amendments to the Convention and most have come into force; but here again, it should be noted that, none of the amendments have come into force for all contracting States to ICAO.

Article 1 replicates the phrasing of the 1919 Paris Convention, recognising that each State has complete and exclusive sovereignty over the air space above its territory and given that it was born after another major war it is hardly surprising. And again, the Preamble reaffirms that, “*the future development of international civil aviation can greatly help to create and preserve friendship and understanding among the nations and peoples of the world, yet its abuse can become a threat to the general security*”.

International air transport is only possible due to cooperative arrangements, concessions and privileges accorded on a reciprocal basis; and yet, even the interpretation of reciprocity is debatable from an equality perspective, as it is often viewed that the balance tends to be weighted in favour of one party.

The Chicago Convention builds upon the basis of the 1919 Paris Convention, which has its roots firmly in Laws of the Sea and maritime law. The Chicago Convention refers to ‘territory;’ and, a definition is provided by Article 2, which states;

“For the purposes of this Convention the territory of a State shall be deemed to be the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection or mandate of such State.”

The earth is 70% water and yet it is 100% air but the emphasis is clearly to the protectionism of States to the air above their land and to the territorial waters. There have been numerous disputes concerning the extent of the territorial sea, which has ranged

from three to 200 nautical miles. Often the higher number being expressed to protect trade by way of fishing interests. Under the United Nations Convention on the Law of the Sea (UNCLOS)²⁹ a specified area is provided. Article 13 (UNCLOS) refers to an area not exceeding 12 nautical miles.

Article 12 of the Chicago Convention refers to flight ‘*over the high seas*’ and likewise UNCLOS defines this within Article 86, as:

“...all parts of the sea that are not included in the exclusive economic zone, in the territorial waters of a state or in the archipelagic waters of an archipelagic State.”

Therefore, the freedom of the high seas also includes the freedom of overflight, which no State may claim as subject to its sovereignty.

However, whereas UNCLOS grants the ‘right of innocent passage’ to foreign aircraft over the territorial sea to all foreign ships, including military ships, the Chicago Convention does not.

Laws of the Sea therefore also has the aim to provide clarity in relation to an analogy to the Freedoms and yet here again, there has been differing interpretation as to the balance between trade and security; the *Grotius vs. Vattel* theories.³⁰ The Dutch international lawyer *Hugo Grotius* expressed the idea of a *mare liberum* and competitive access to trade through the granting of extensive freedoms and rights. Whilst, *Eric de Vattel* offered an extensively different view; whereby, his doctrine stated that security and not commerce should prevail. Vattel believed that a state’s sovereignty should be extended to the territorial sea.

Yet, Grotius also recognised that certain parts of the sea should be viewed as property of an adjacent State’s sovereignty. In his publication, *De iure belli ac pacis*, he also expressed the view that air was common property but he did recognise that it could not be used without at the same time technically using the land over which it passed.

UNCLOS also defines more specifically other areas and zones, such as the ‘*contiguous zones*’ and ‘*Straits used for International Navigation*’. In respect to the latter area there is particular concern over the freedom permitted; whereby, for both overflight and navigation purposes the States have an interest to protect the waters on grounds of sovereign security in strategically important areas whilst the strait are also to be viewed as important trade access routes. This exemplifies the *Grotius vs. Vattel* arguments. This has led to the development of the ‘regime of transit passage’, whereby both ships and aircraft enjoy the right of unimpeded transit passage in straits and for aviation this means overflight solely for the purpose of a continuous and expeditious transit of the strait.

UNCLOS is important as a means to provide clarity in respect to wording to be found in the Chicago Convention. Yet, President Roosevelt, at the Conference, commented as to be able to learn from the history of the sea, stating:

“Some centuries ago, an attempt was made to build great empires based on domination of great sea areas. The lords of these areas tried to close the areas to some, and to offer access to others, and thereby to enrich themselves and extend their power. This led directly to a number of wars both in the Eastern and Western Hemispheres. We do not need to make that mistake again. I hope you will not dally with the thought of creating great blocs of closed air, thereby tracing in the sky the conditions of future wars. I know you will see it that the air God gave everyone shall not become the means of domination over anyone.”³¹

Yet, inevitably, the fear of war challenging sovereign security led to a protectionist approach being continued into the Chicago Convention as a compromise to achieve a degree of success at the Conference. This has ever since curtailed the economic freedom to the level that Roosevelt had hoped for air services and the delicate balance between security and trade continues, although arguably both are subject to protectionism.

Air transport, by the very nature of such, shrinks the world by making areas easily accessible. Aviation has been key in quickening the globalisation process. Economies, societies and cultures have become more integrated through trade networks, communications and transportation. And whilst maritime has centuries of history, involving trade, discovery and adventure, it also has its origins firmly rooted in war and crimes, including human trading.

Air transport, similar to maritime transport has played a part in taking and saving lives; and therein, lies the continuous battle between trade and development and conflict and protectionism. The Chicago Convention is specific in setting boundaries and divisions, insomuch as it is only applicable to civil aircraft and not to state aircraft (military, police or customs). And yet, globalisation has resulted in a different type of warfare – ‘terrorism’.

The drafters of the Chicago Convention could hardly of envisaged the modern day challenges that aviation has had to face in a period of ‘peace’. The Convention always recognised the need to ensure aviation safety. And, security, was after all, mentioned as a primary motivator of the Convention, but ‘security’, to protect international aviation against the criminal acts of individuals, was never mentioned at the Chicago Convention in 1944.

It was some 30 years before security was to be annexed to the Chicago Convention in earnest as a stand-alone chapter. This followed the international multilateral Conventions earlier in the ‘70s, which related to the suppression of offences, criminal prosecution and penalties. This was instigated following Assembly Resolution A17-10 and A18-10, plus further extensive studies through the ICAO Council, Air Transport Committee, Air Navigation Commission and the Unlawful Interference Committee, which led to a new set of Standards and Recommended Practices in relation to security. These were adopted on 22 March 1974 as Annex 17 – Security. Annex 17 has been amended and updated since this time and now consolidates information that was previously found in other Annexes. The basis of the Annex is to focus on preventative measures.

It is interesting, however, to note that UNCLOS contains two specific references to ‘aircraft’. Both are to be found in Part VII when referring to the high seas and both have reference to criminal acts and the detention of offenders. One reference concern ‘*piracy*’ and the other to ‘*hot pursuit*’.

Article 100 through to Article 107 deal with offences and acts of piracy, which according to Article 101 is an act involving:

- a) any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed:
 - (i) on the high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft;
 - (ii) against a ship, aircraft, persons or property in a place outside the jurisdiction of any State;

(b) any act of voluntary participation in the operation of a ship or of an aircraft with knowledge of facts making it a pirate ship or aircraft;

(c) any act of inciting or of intentionally facilitating an act described in subparagraph (a) or (b).

Article 100 refers to the fact that all States subject to UNCLOS “shall cooperate to the fullest possible extent in the repression of piracy on the high seas or in any other place outside the jurisdiction of any State”.

Article 102 refers specifically to piracy by a warship, government ship or government aircraft where the crew have mutinied.

The right of hot pursuit concerns an aircraft entitlement to pursue a ship, specifically the right extends to “warships or military aircraft, or other ships or aircraft clearly marked and identifiable as being on government service and authorized to that effect”. There are specific conditions set, for example, that the ‘pursuit must be commenced when the foreign ship or one of its boats is within the internal waters, the archipelagic waters, the territorial sea or the contiguous zone of the pursuing State, and may only be continued outside the territorial sea or the contiguous zone if the pursuit has not been interrupted’ (Article 111).

The Chicago Convention remains silent in both these regards but under UNCLOS it is technically acknowledged that an act of piracy is possible on board an aircraft by either a member of the crew or passenger. To date, no such incident has ever ‘officially’ been recorded, but the recent events surrounding the disappearance of Malaysian Airlines Flight 370, on March 8, 2014, raised the potential for such a ‘barbaric’ act to be undertaken – recalling that the term barbaric has origins in the maritime piracy acts off the Barbary Coast (by the Barbary Pirates).

3 Gross atrocities and unlawful acts

Attacks on aviation, both aircraft and airports have occurred for over 80 years, and regardless of the definition applied to such acts, such atrocities which effect civil aviation are by no means new; and, therefore, arguably neither is ‘terrorism’ a new phenomena.³² A review of criminal acts clearly indicates the origins of terrorism clearly traceable to the 1930s.³³ There are however, distinct periods that show the advancement and sophistication of criminals and terrorists from the 1930s to the present time, which have subsequently led to parallel responsive and preventative policies and practices.³⁴

The events from the 1930s to the present time reveal only too clearly the vulnerability of civil aviation to unlawful acts both when on the ground and in the air. Comment is made in respect to the inflight offences and those levied against an aircraft, specifically hijacking and terrorism. Offences on board aircraft have related to sabotage of an aircraft in flight, including the air navigation systems, unlawful seizure of an aircraft in flight (hijacking) through to disruptive and unruly passengers.

3.1 Hijackings and international law

Dempsey (2003)³⁵ refers to hijackings being recorded in the 1930s and indicates that the first recorded one was in 1931 when Peruvian revolutionaries hijacked a Ford Tri-motor. However, Milde³⁶ contests the sequence of events, pointing to the fact that, in

reality, the incident bore little if any of the elements that have come to be associated with a hijacking.

A series of events in the 1960s and 1970s revealed the need for unified law, which would act as both a common deterrent, thus aiming to stop these occurrences, and provide for a consistent approach when dealing with offenders. Prior to this, national law was the only means to prosecute such unlawful acts subject to the relevant penal law (be it, assault, kidnapping, possessions of firearms and other weapons, etc.).

International law was however slow to respond, attributed in parts to the political actions commonly associated with hijacking and the equally political nature of ICAO. However, several subsequent International Conventions were adopted that referred to 'unlawful seizure' of an aircraft, namely:

3.1.1 The Tokyo Convention of 1963 on offences and certain other acts committed on board aircraft

Article 1 covers the scope of the Convention, which dealt with any offence committed or act done by a person 'on board' an aircraft, whilst it is in flight, over the surface of the high seas and outside the territory of the registered State.

The Convention does not create a new concept or a new criminal offence. At the time of drafting there were few incidents of unlawful seizure of aircraft and the belief was that domestic law would be appropriate to cover incidents. Again this also linked into the political nature of such offences. However, some nations contested this and as a consequence Article 11 was inserted and reference was made to 'unlawful seizure of aircraft'. In essence, it addresses only the aftermath of such, and the action that should be taken on landing. In reality the practice differed from State to State and this led to emphasis to Article 25 of the Chicago Convention, which related to an aircraft 'in distress'.

ICAO (Assembly Resolution A16-37 adopted in Buenos Aires, in September 1968) urged States to ratify the Convention, but also recognising the potential inadequacies asked the Council to "institute a study of other measure to cope with the problem of "unlawful seizure".

The Tokyo Convention entered into force on 4 December 1969 and has now become part of the general international law. Currently, 185 States have ratified the Convention.³⁷

3.1.2 The Hague Convention for the suppression of unlawful seizure of aircraft – 16 December 1970

There was only a vague concept of what 'unlawful seizure of an aircraft' was. It was accepted that the offence was a criminal offence but that there needed to be consistent action. However, international law contained few precedents in relation to criminal acts and the prosecution of offenders. Historically, the oldest related crime of this type related to piracy, of a shipping nature, on the high seas.

1968 through to 1970 saw an increase in the number of attacks directed towards aviation. 1970 in particular is viewed as a dark period, as it saw a high number of incidents on aircraft in a short period of time. On 21 February a Swissair aircraft flying from Zurich to Tel Aviv crashed after the explosion of a bomb on board and in September a total of 5 planes were seized by Palestine 'hijackers'. Known as the Dawson's Field hijackings the events were, for a long time, viewed as the 'blackest'

period in aviation. It became acutely apparent that there was an urgent need to develop further international provisions to deal with, not only unlawful seizure of aircraft but the act of sabotage of aircraft, however, the latter offence would be delayed as momentum for the first was gaining pace.

Article 1 of the Hague Convention states the specifics of the offence, namely:

“Any person on board an aircraft in flight:

(a) unlawfully, by force or threat thereof, or by any other form of intimidation, seizes, or exercise control, of that aircraft, or attempts to perform any such act, or

(b) is an accomplice of a person who performs or attempt to perform any such act commits an offence....”

A later definition is offered for when an aircraft is deemed to be ‘in flight’ but it is interesting to note that the perpetrator(s) has to be on board the flight as opposed to having planted some device upon it.

The Hague Convention noticeably extends the jurisdiction over the offence and offenders from the more restrictive State of registration of the aircraft as the competent authority (under the Tokyo Convention) to a more encompassing, jurisdiction, although Milde³⁸ identifies that there was a degree of controversy over extradition.

The Convention was significant from several other perspectives; firstly, it contributed to the development of international law and secondly, it showed that with political will, and a sense of urgency, quick and effective laws are able to be achieved under the international umbrella.

The Convention entered into force on 14 October 1971 and currently has been ratified by 185 States.³⁹

3.1.3 Montreal Convention for the suppression of unlawful acts against the safety of civil aviation, signed at Montreal on 23 September 1971

The Convention entered into force on 26 January 1973 and has been ratified by 188 States.⁴⁰ It takes into account acts of sabotage, such as an explosion caused by a bomb, although, incidents of this nature were far from new. In 1933, an Imperial Airways Argosy aircraft crashed in Belgium after a fire was started on board by a passenger. The crash in Diksmuide (Belgium) is reported to be the first commercial airliner sabotage.⁴¹

One of the most difficult aspect concerned defining acts of this nature. Abeyratne⁴² identifies that none of the previous Convention actually provide a definition for the offence of hijacking and that this Convention was no exception. However, it did seal up part of the lacunae of the Hague Convention with regards to the fact that the offender does not need to be physically present in the aircraft.

The incidents at Dawson Field led to questions being asked as to whether the Convention should apply to an aircraft on the ground, with differing opinions being stated. Finally the Conference decided that it would extend the jurisdiction to ‘*aircraft in service*’. Milde (2012)⁴³ indicates that certain articles continued to remain poor and imprecise; whereas in relation to extradition, he states that the controversy of the Hague Convention *appeared* to be resolved, on paper at least, in this later Convention. However, this was to be contested in the *Lockerbie* disaster, in the 1988 bombing of Pan Am Flight 103 over Lockerbie.⁴⁴ The Libyan authorities refused to extradite in accordance with

Article 7 of the Convention and as a consequence the matter was referred to the UN Safety Council.

3.2 *Recognising terrorism and revisiting Lockerbie*

The World English Dictionary traces the roots of the word 'terrorism' back through Greek, French and Latin origins. The emphasis remains the same, namely, to frighten or to cause fear (from the root 'tres' to make tremble).

There is no world wide accepted definition offered for terrorism⁴⁵ and it was not until the mid 1980s that the UN Security Council referred specifically to the term 'terrorism'.⁴⁶ This followed a spate of violent attacks during the previous year where aviation was once more intrinsically involved.⁴⁷

In the 1990s there was again further reinforcement to the need for cooperative worldwide action to combat acts of 'terrorism', and Resolution A/RES/49/60 (84th plenary meeting, 9 December 1994) although not specifically defining 'terrorism', made reference, per se, to all "*criminal acts intended or calculated to provoke a state of terror in the general public*" in any "*circumstance unjustifiable, whatever the considerations of a political, philosophical, ideological, racial, ethnic, religious or any other nature that may be invoked to justify them*".

The Resolution once again listed the ever-growing list of international treaties, which concerned various aspects relating to the problems of international terrorism. Amongst others, were listed, the Convention on Offences and Certain Other Acts Committed on Board Aircraft, signed at Tokyo on 14 September 1963, the Convention for the Suppression of Unlawful Seizure of Aircraft, signed at The Hague on 16 December 1970 and the Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation, concluded at Montreal on 23 September 1971. Other linked areas where terrorist attacks were identified as being of concern related to, the Protocol for the Suppression of Unlawful Acts of Violence at Airports Serving International Civil Aviation, supplementary to the Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation, signed at Montreal on 24 February 1988. Attacks against maritime were also identified through the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation, done at Rome on 10 March 1988 (SUA Convention) and the Protocol for the Suppression of Unlawful Acts against the Safety of Fixed Platforms located on the Continental Shelf, done at Rome on 10 March 1988. It should be recalled that on October 7, 1985, four militants hijacked a ship called the '*Achille Lauro*' off Egypt holding the passengers and crew hostage. The vessel was sailed towards Tartus, Syria, and demands were made for the release of 50 Palestinians then in Israeli prisons. Several days of negotiations followed, during which time one passenger was murdered. Eventually, the hijackers agreed to leave the liner in exchange for safe passage and they were flown, by an Egyptian commercial airliner, towards Tunisia. However, the aircraft was forced down by US fighters and landed at a NATO base on Sicily. This act led to conflict between the US and Italian authorities and resulted in one of the hijackers securing his freedom.

Recalling the definition of piracy (as above in 2.5.1) it should be noted that the incident onboard the *Achille Lauro* did not fall within the UNCLOS definition (Article 101) and as a consequence the incident led to maritime playing catch-up and responding to a set of circumstances already faced. Subsequently, certain governments introduced the draft text for the SUA Convention as a means to suppress maritime terrorism of this

nature. It is therefore not surprising that the SUA was (this time) largely modelled on the aviation equivalent Conventions.⁴⁸

Other International Conventions which were cited within the Resolution concerned the Taking of Hostages, adopted in New York on 17 December 1979, the Convention on the Physical Protection of Nuclear Material, adopted at Vienna on 3 March 1980 and the Convention on the Marking of Plastic Explosives for the Purpose of Detection, done at Montreal on 1 March 1991 (amongst others). This listing clearly demonstrated the depth of growing concern as to the vulnerability and potential risk of terrorism to the infrastructure and specifically transport.

The Resolution, somewhat ironically given the Archille Lauro circumstances, reinforced the “*desirability for closer coordination and cooperation among States*” in suppressing and combating terrorism making reference to the fact that in order to deal effectively with the growing trend, events and circumstances of such attacks, member states should review their procedures and legislative framework, and work collaboratively and effectively to prevent such occurrences and bring offenders to trial.

Emphasis was also given to the need for *international* legal instruments to deal with acts of *international* terrorism, and the need to develop frameworks for this global problem by *international* law and the codification of such, thus placing the UN and the relevant specialised bodies at the heart of a concerted and unified response.

Similar to the high profile maritime incident involving the Achille Lauro, aviation was also to suffer a catastrophic terrorist incident at the end of the 1990s with the bombing of Pan Am flight 103 over the Scottish town of Lockerbie. This incident again was to reveal the inadequacies of International provisions, especially when combined with the apathy of some states to take a concerted and united approach to bring alleged perpetrators to justice.

3.2.1 Lockerbie

On 21 December 1988 Pan Am flight 103 exploded over the Scottish town of Lockerbie. The death toll was 243 passengers, 16 crewmembers and 11 local people on the ground.⁴⁹ It was determined that the cause of the explosion was due to a bomb hidden inside a radio-cassette player within a suitcase.

Lockerbie demonstrates only too clearly the complexities of a terrorist attack with international dimensions. The case revealed inadequacies re communications, cooperation and collaboration within countries and between States. In the aftermath, evidence was presented to show that the US intelligence services had heightened intelligence to show that Pan Am was at risk, plus the airline had repeatedly ignored warnings that its security measures were not sufficient for interlining baggage. There was also the fact that the US was not a signatory to the 1952 Rome Convention, which was the applicable Convention to deal with ‘Damage Caused by Foreign Aircraft to Third Parties on the Surface’.⁵⁰

Successful joint operations were conducted by the USA and UK authorities, which led investigators to two Libyan nationals and what had seemed to be clear provisions within Article 7 of the Montreal Convention 1971 were challenged by Libya when the Libyan authorities refused extradition.

Article 7 states,

“The Contracting State in the territory of which the alleged offender is found, shall if it does not extradite him, be obliged, without exception whatsoever and whether or not the offence was committed in its territory, to submit the case to its competent authorities for the purpose of prosecution.....”

Libya was a Contracting State and although refusing extradition stated willingness to prosecute the ‘alleged’ offenders ‘if’ evidence was provided to show their involvement. As a consequence the matter was referred to the UN Security Council as a subject of International Terrorism.⁵¹ *Lockerbie* was the first test case for the rule of law in the international legal order of the UN.⁵² Article 103 of the UN Charter states,

“in the event of a conflict between the obligations under any international agreement, their obligation under the present Charter shall prevail.”

Sanctions were imposed on Libya until 2003,⁵³ although some had previously been lifted in 1999. The sanctions included denial by States of ‘permission to any aircraft to take off from, land in or overfly their territory if it is destined to land or has taken off from the territory of Libya’ prohibition re supplying aircraft or aircraft parts to Libya and the freezing of all funds overseas. Such sanctions were largely restrictive on trade and again demonstrate the trade-off re security vs. competition (trade).

The ongoing *Lockerbie* Investigations revealed that the plastic explosive SEMTEX had been used in the *Lockerbie* bomb and although legitimately used by the likes of armies and in industries such as mining, *Lockerbie* showed the devastation that could be caused if terrorists possessed it. It showed, not only the power of SEMTEX but, the difficulty in detecting the explosive. It was not detectable by X-ray and has a very low mass vapour with no discernable smell. On 30 January 1989 the Council of ICAO established an ad hoc Group of Experts to consider the consequences to aviation and a means to make SEMTEX detectable. The Convention on the marking of Plastic Explosives for the Purpose of Detection, was signed at Montreal on 1 March 1991 and entered into force on 21 June 1998. It is currently signed by 148 parties.

As has previously been identified airports have also been targeted by terrorists; and, again, as a result, action has been taken to prevent attacks and reduce the danger at airports. Between 1973 and 1985 Milde⁵⁴ identifies that there were 25 attacks at various airports. As a consequence the Protocol for the Suppression of Unlawful Acts of Violence at Airports, supplementary to the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation (1971, Montreal) was signed at Montreal on 24 February 1988.

The screening of passengers has always been an issue, whereby many of the attacks on aircraft have revealed the inadequacies of effective screening of both passengers and baggage; and, it was to be the September 11, 2001 attack (9/11) that was to only too clearly to show this and the consequences of such failings.⁵⁵

3.3 9/11 and the means to protect civil aviation

“The events of 9/11 were arguably the most high profile tragedy to highlight that when something goes wrong the cost can be enormous, both in terms of loss of life and the respective financial consequences” (Fox, 2014a).⁵⁶ The result of such a terrorist atrocity leads to the development of appropriate frameworks (Fox, 2014b) yet it is arguable whether States should have already anticipated such occurrences and been prepared by

having an international framework in place to deal with the aftermath of such and ideally to prevent it in the first instance.

In 1994, there was perhaps an indicator of such a possible use of an aircraft being used as a weapon and flown into a building, when Air France, Flight 8969 was hijacked with the intention to blow the plane up over the Eiffel Tower or to crash the plane into it.⁵⁷ Yet, once again, it took the events of 9/11 for the international community to react taking responsive action, having lacked the foresight to have acted pro-actively to minimise such a risk.

Einav⁵⁸ states that the 9/11 attacks represented ‘The Crossing of the Rubicon’ forcing the world to recognise the existence of a new era and to evaluate a new type of threat.

In 2007 at the 36th Session of ICAO the Assembly had on its agenda Item 46, which concerned “Act and offences of concern to the international aviation community and not covered by existing air law instruments”. At the 33rd Session ICAO had discussed the basis of such, in Resolution A33-1, that concerned a Declaration on misuse of civil aircraft as weapons of destruction and other terrorist acts involving civil aviation; whilst Resolution A33-2 related to a Consolidated statement of continuing ICAO policies related to the safeguarding of international civil aviation against acts of unlawful interference. In essence, 9/11 emphasised the urgency of studies that looked at predicting threats to civil aviation and the review of the existing ICAO security conventions.

The ICAO Legal Committee elaborated that aircraft could be used as a weapon, as had occurred in 9/11 and stressed the need for measures to maintain public confidence. The Group also identified the risk of civil aircraft as a means to spread biological, chemical and nuclear (BCN) substances, as well as attacks against civil aviation using the same materials. The group additionally discussed suicide attacks and the criminalisation of offences, including hoaxes.

The Aviation Security Panel also addressed new threats to civil aviation at its Twentieth Meeting in Montreal from 30 March to 3 April 2009. Recognition was given to the emerging threat of cyber attacks on civil aviation and it was concluded, *inter alia*, that this is also a real risk that cannot be ignored.

However, Milde⁵⁹ states that this was ‘post-9/11 posturing’, identifying that the issue of BCN weapons, in particular, is not sufficiently subject specific to be dealt with by ICAO, and that it should be handled by the UN as a general area. That said, the threat to aviation and the use of aircraft as a means to distribute such an attack should be viewed as highly conceivable and probable a threat, along with the risk of cyber terrorism.

4 Beijing and beyond – new threats and measures

In 2010, ICAO accepted an invitation from the Chinese Government and a meeting was convened in Beijing, from 30 August to 10 September 2010. The number of representatives from the participating States was approximately 80. Milde,⁶⁰ although disputing the number in attendance (stating that it was just 76) remains critical of the low turn out – *just 40% of the total ICAO membership*. Given the recognised importance of the risks of terrorist attacks to aviation and the potential modern day threats, this number, once again, demonstrates the reticence of member states to commit to concerted and positive action collectively taken in unison.

Two instruments were adopted by the Diplomatic Conference

- 1 the Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation⁶¹
- 2 the Protocol Supplementary to the Convention for the Suppression of Unlawful Seizure of Aircraft.⁶²

The second one amended, what had been viewed as ‘the pioneering’, 1970 Hague Convention that has stood for over 40 years. The original 1970 Hague Convention however continues to be in force for the 185 participants and as Milde⁶³ explains, it is unlikely that the parties will denounce the original Convention. The protocol is to come into force when the 22nd deposit of the ratified instrument. The current status remains at 32 signatures, five ratifications and two accessions, and therefore the Protocol is not in force.

As Abeyrante⁶⁴ comments, the first one, *the Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation (The ‘Beijing’ Convention)*, stands out from the previous Conventions, insomuch as “it bases itself on responding to new and emergent threats to security”, and perhaps, for the first time, it reveals pro-active thought, which clearly acknowledges the possibility of such an attack and the need for preparedness before the event.

The risk of discharge from an aircraft of any BCN is clearly stated in the respective provisions of the Convention. The aftermath of bioterrorism is also referred to, yet the possibility of an attack using biological chemicals, discharged in this manner, is far from new and has its origins traceably back to the WWI, so it is questionable whether it is, as Abeyrante⁶⁵ describes, a ‘*timely initiative*’ or one that is long overdue. That said, Abeyrante⁶⁶ provides an interpretive study of ‘The Convention’. During the study, it is noted that the “*Beijing Treaty of 2010 is a step forward in the right direction with the threat of cyber terrorism looming, affecting the peace of nations. Air transport could well be a target towards the erosion of that peace*”. Powerful words, and clear acknowledgement of the likelihood of a cyber attack being directed towards aviation. Yet, perhaps, it was only a case of an immediate response, for it failed to achieve a consensus response at the Commission of the Whole and currently there remains only 30 signatures, five ratifications, and three accessions. Like the Protocol Supplementary to the Convention for the Suppression of Unlawful Seizure of Aircraft, it is not in force. However, the risks have not subsided but the political will to take coordinated action appears to have.

4.1 *Cyberspace is under attack!*

Security threats to cyberspace are a real and everyday problem that intensifies rather than diminishes. Cybersecurity both recognises the insecurity of cyberspace, as well as addresses the technical and non-technical practices of making it more secure in order to prevent cybercrime. It was to be the second Gulf War (1991) that led to the US military raising the potential of cyber abuse as a means to disable an opponents communications and weaponry systems.⁶⁷

Before the end of the 20th century the *United Nations Manual on Cybercrime* was published, which called for cooperation from law enforcements agencies whilst also alerting to the danger of criminal abuse.⁶⁸

The Oxford (English) dictionary online,⁶⁹ defines ‘cyberterrorism’ as “the politically motivated use of computers and information technology to cause severe disruption or widespread fear”.

9/11 heightened the fears of cyberterrorism and the devastation that could be caused to critical infrastructures, such as air navigation systems. And yet, somewhat ironically before 9/11, George W. Bush stated, as a presidential candidate, that “*Americans forces are overused and underfunded precisely when they are confronted by a host of new threats and challenges – the spread of weapons of mass destruction, the rise of cyberterrorism, the proliferation of missile technology*”.⁷⁰

2001 also saw the UN Resolution on Combating the Criminal Misuse of Information Technologies at the UNGA 55th Session, 81st Plenary Meeting (UN Doc. A/RES/55/63).⁷¹

In 2008, it was reported that the Boeing 787 Dreamliner was potentially vulnerable to cyber attack.⁷² Cyber security has been a relatively minor issue in civil aviation but as the newer ‘*eEnabled*’ aircraft and the next generation air traffic management (ATM) systems are introduced, the risk of cyber insecurity and cyberterrorism intensifies. There is a degree of irony in this, inasmuch as these new technologies, which seek to increase safety and fuel efficiency, compromise security due to insufficiently protected, fragmented and disjointed systems.

Although the risk of cyber attack against civil aviation has been recognised for a number of years, there has not been a noticeable coordinated and structured approach implemented to tackle this worldwide issue.

However, in July 2012 Costin, a computer scientist, gave a talk on the weaknesses of the new US air traffic system (operational in 2014) at the *Black Hat* security conference in Las Vegas.⁷³ It was sufficiently worrying that ICAO made direct reference to this at the Twelfth Air Navigation Conference in Montréal (ANC/12) later in the same year.

Recent updates have seen Annex 17 – Security – Safeguarding International Civil Aviation against Acts of Unlawful Interference being updated to include the information security dimension, and chapter 18 of the Security Manual for Safeguarding Civil Aviation against Acts of Unlawful Interference⁷⁴ is also available as advisory material to Member States. However, what was clearly recognised at the Conference was that cyber crime was a ‘real’ impediment to the implementation of the Global Air Navigation Plan (GANP) and that there was a need for a ‘top-down’ Cyber Security Task Force (CSTF) to be coordinated and implemented by ICAO.

Within Europe, Member States continue to be duly concerned at network information security (NIS) and the risk of cyber attack, establishing their own task forces and response teams. In the UK, for instance, the Home Office has updated its Strategy for Countering Terrorism: ‘*CONTEST*’.⁷⁵ This consists of the following four main work streams that respond to the threat of terrorism; namely to ‘*Pursue*’ ‘*Prevent*’ ‘*Protect*’ and ‘*Prepare*’. Within the 2011–2015 *Protect* objectives, acknowledgement is given to the need to reduce the vulnerability of the transport network, as well as the Critical National Infrastructure, including from cyberattack and terrorism. Aviation is only one such area of concern, nevertheless, it is viewed as a priority, but recognition is also given within the Strategy to the need for ‘strong global aviation security arrangements’.

At a European level there are various bodies [for example, the European Aviation Safety Agency (EASA), European Civil Aviation Conference (ECAC), etc.] that continue to express concern and undertake extensive work aimed at reducing the cyber threat to civil aviation. In February 2013, the Cyber Security Strategy of the EU called for stronger

civil-military cooperation, and the message from Eurocontrol⁷⁶ tends to be that steady progress is being made in ATM cyber security. A proposed EU Directive⁷⁷ of the European Parliament and of the Council concerning measures to ensure a high common level of network and information security across the Union seeks to provide a framework for cyber security at a national level and the air transport industry is specifically listed as part of the critical infrastructure within it.

Despite the concerted effort, there remains concern that the progress to prevent cyber attacks, certainly from a coordinated perspective, is not keeping pace with technology and the interconnection and interdependence of the various IT systems that now function. The Beijing Protocol and Convention are a timely reminder, that despite initial good intentions, States remain reluctant to commit to collaborated approaches. Even when the aim is to give greater protection on a security front, States continue to exhibit national protectionism despite IT capabilities and uses extending far beyond their boundaries as aviation also does.

5 *Lest we forget*

5.1 *Fragmented and un-united: 2014*

Aviation remains vulnerable despite advancements in safety. This is due to a fragmented and un-united approach, which challenges, not only competition due to archaic protectionism measures but security, especially the exposure and vulnerability to 'new' and contemporary attacks.

The development of international air law has always been closely linked to wars and acts of violence (normally following such events). Equally, the related response has been marked with concern over individual sovereignty and control which States are reluctant to relinquish.

The issue remains that international law is subject to the political will of States. Consequently, not all States have ratified, or are signatories, to all of the various multi-lateral air law treaties. This causes disparity and strikes at the very heart of the UN Charter, which aims "to take effective *collective measures for the prevention and removal of threats to the peace*" (Article 1.1).

The Preamble to the Chicago Convention reaffirms that, "the future development of international civil aviation can greatly help to create and preserve friendship and understanding among the nations and peoples of the world" yet it also acknowledged that "its abuse can become a threat to the general security". It is arguable whether the 'abuse' could also be levied at States reluctance to take a concerted effort to aid new and contemporary threats to security, or even to keep pace with what is acknowledged as serious and likely risks.

5.2 *Warnings!*

Lockerbie and 9/11 are two atrocities, which it is hoped will never be repeated; but, both were 'arguably' predictable and the likelihood is that there will be a catastrophic event again, involving aviation, where the potential was foreseen and warned of.

The disappearance of Malaysia Airlines Flight 370 on March 8, 2014, caused many theories to be raised as to possible scenarios as to what had occurred. Some bordered on

bizarre, whilst others offered a plausible explanation or proposed a theory as to what ‘could have’ happened. It is an incident that has gripped not just the world of aviation, but ‘*virtually*’ everyone, and it brings into focus the potential of what could happen in the future to an aircraft in flight. The disappearance led to differing terminology being used and banded around indiscriminately, such as ‘an act of piracy’, ‘cyberterrorism’ ‘sabotage’, etc.

In the first few days reference was made to two Iranians who were travelling (and had boarded) on false passports, and although Interpol was ‘inclined’ to believe that the two users had no links to terrorism,⁷⁸ it did raise concern as to the potential for such to occur in the future, given the obvious security lapses and inability to coordinate/share data across borders. This begs the question, in 2014, should aviation not have learnt basic lessons from 1858 and the attempted assassination of Napoleon III? Should the system not be ‘foolproof?’ After all, 9/11 also alerted the world to the potential of insecure travel documents.

Along with catastrophic accident theories, suggestions have been made as to a possible hijacking by passengers, hijacking by a member of the crew and/or sabotage by a crewmember. It should be recalled that the hijacking of a plane by a member of crew had after all occurred in February with the hi-jacking of Ethiopian Airlines Flight ET 702.

Other theories have suggested that the plane landed at an unknown location, and was possibly then going to be used again, including as a weapon for attack purposes. This is potentially suggestive of the UNCLOS (Article 101) definition of piracy, whereby a member of the crew or a passenger of a ‘private’ aircraft undertakes an act of violence, but this would then have to be directed on the high seas (or outside the jurisdiction of any State) against either another aircraft, or ship, or against property or persons on board either another aircraft or ship. *To date* there are no recorded acts of piracy involving an aircraft, but that is not to say tomorrow it will not happen.

Cyber attack has also been suggested, and suggested as a possible theory, which led to the aircraft going off course. Although the cyber attack theory is being firmly quashed, it has brought this discussion to the attention of the masses and raises the possibility, that should this happen in the future, there will be resounding questions asked as to why more effort was not taken through coordinated practices to prevent what is seen as a ‘real’ vulnerability.

At the time of writing this paper the disappearance of MH 370 remains unresolved, and as happened in the US after 9/11, there are many questions still to answer. There is also, perhaps, a degree of shared irony in that, like the USA, Kuala Lumpur also has twin towers in the form of the Petronas-Twin Towers, and now, the country also has an aviation disaster that will haunt it for many years – *what lessons will be learnt from flight MH 370 is yet unknown. But lessons should be learnt!*

6 Conclusions

This paper commenced by making reference to the fact that this year marks 70 years since the Chicago Convention. It also sees 100 years since the start of the ‘*war to end all wars*’, WWI. During this period, development to aviation technology has been enormous and accessibility to air travel has intensified beyond that ever envisaged. Aviation is a vital driver of the global economy, connecting business and society. Yet,

aviation owes much to warfare for its development, with the Chicago Convention being born out of the ashes of one of the bloodiest of all. However, despite States utterings of good intentions, there is a noticeable reticence to relinquish any form of State control, even for the benefit of aviation, let alone for the greater good of peace and security. Security was very much overlooked at the start despite the Preamble of the Chicago Convention acknowledging that, “*the future development of international civil aviation can greatly help to create and preserve friendship and understanding among the nations and peoples of the world, yet its abuse can become a threat to the general security*”.

International aviation law still remains subject to the whims of States and is forever playing catch-up, especially where security is concerned. Without States combined and collaborative commitment there is a real possibility that aviation will be at the forefront in abuses of security, which will inevitably affect general world security and peace.

The risks of cyberterrorism, and civil aircraft being used as a means to spread BCN substances are real. It is today's challenge not only for aviation but for society; and, it is one that is not geographically isolated by sovereign borders. It should not be overlooked or responded to ‘when’ an incident occurs. *Lockerbie* and 9/11 showed us that ‘when’ could easily be today. For aviation to move forward in the security of knowing that it is as best ‘prepared’ as it could be, then a concerted and united ‘pro-active’ lead needs to be taken. At the moment there is a chasm between the inter-operative and seamless approach of aviation travel with the division of policies that exist worldwide. The protection accorded by International Law (Treaties and Conventions) needs to be CONTEST’ed – *Lest we forget* the origins of aviation and the lessons that should have been learnt to date.

Notes

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