The Impact of September 11 2001 on Aviation

9.11

Foreword

On September 11, 2001 anyone associated with aviation knew that the industry would never be the same. What we did not know was how resilient the industry would be in the aftermath of the tragedy or the direction in which it would change.

A decade after the event, there can be no doubt about aviation's resilience. By 2004 revenues and traffic surpassed 2000 levels. And by 2006 aviation had returned to profitability—albeit with a weak 1.1% margin. In the interim airlines dealt with SARS, additional terrorist attempts, wars, and rising oil prices.

It took three years to recover the $22 billion revenue drop (6%) between 2000 and 2001. When the global financial crisis struck in 2008, 2009 revenues fell by 14% ($82 billion) to $482 billion. This was largely recovered in the following year when industry revenues rose to $554 billion and airlines posted an $18 billion profit. Clearly the restructuring of the decade has left airlines leaner and more resilient in the face of crisis.

Over the decade, the dimensions of global aviation have also changed. IATA expects 2011 airline revenues of $598 billion—nearly twice the $307 billion of 2001. Airlines are also expected to carry 2.8 billion passengers and 48 million tonnes of cargo. That's a billion more people flying and 16 million more tonnes of cargo than in 2001.

While it is difficult to isolate the impact of the events of 2001, we can say that they were a part of a chain of events that cost the industry three years of growth. The 2008 global financial crisis cost another two years of growth.

The legacy of 9.11 is felt most in airport security. Aviation is more secure today than in 2001. But this has come at a great price in terms of passenger convenience and industry costs. As we move forward, there are five major lessons in security over the last decade:

- Governments must coordinate the development and deployment of security measures to ensure harmonized global standards and eliminate overlapping and redundant requirements among nations.

- Governments are obliged to foot the bill for security threats which are national challenges in the same manner as they would do in any other sector. Airlines and their passengers currently pay a security bill that had ballooned to $7.4 billion by 2010.

- Passengers should and do play an important role in helping keep air travel safe. Vigilance and cooperation with authorities are crucial.

- Governments need to embrace a risk-based approach to security screening.

- We must accept that there is no such thing as 100% risk-free security. Governments must focus on the probable and not all that is possible and avoid policies driven by knee-jerk reactions.

A good place to start is by removing the hassle that comes between check-in and boarding at many airports. The building blocks to do a better job exist. The vision for IATA's Checkpoint of the Future is for passengers to be able to get from curb to gate in a seamless and convenient process. For this, we need a risk-based approach to security powered by the enormous amount of data that we can and do collect on travelers. Combined with this will be technology that will allow most passengers to simply stroll through a checkpoint that can detect metal and harmful substances without stopping, stripping or unpacking.

Parts of this vision could be realized with technology that exists today. Others are in development with a three to seven year horizon. The important thing is to keep focused on evolving the 40-year-old concept of today's airport checkpoint into one that is more convenient, more effective and that can handle the ever increasing volume of people who want and need to fly.

Finally, as we commemorate the tragedy of 9.11, the thoughts and prayers of the industry are with the families of the victims—passengers, crew and bystanders. Our best tribute to their memories is a resilient aviation industry. Aviation is a force for good and an instrument of peace that promotes trade, spreads wealth and facilitates understanding among the peoples and cultures of our world.

Antony Tyler
IATA Director General & CEO

The Financial Impact of 9.11

9.11 was the beginning of the most challenging decade in aviation history. But it is important to note that the industry was already in a weak financial position. World trade had slowed and the 'dot.com bubble' had burst the year earlier. Global airline profits had fallen from $8.5 billion in 1999 to $3.7 billion in 2000.

US Impact

- **Air Space Closed:** On September 10, 2001, US airports handled 38,047 flights. On September 12, they handled 252 commercial flights. One week later (September 18) there were 34,743 flights.[1]

- **Passenger Traffic:** US passenger traffic, measured by revenue passenger kilometers (number of travelers multiplied by the distance traveled) declined 5.9% in 2001[2] (compared to 2000) and a further 1.4% in 2002. Airlines struggled to match this decline by cutting capacity (available seat kilometers or number of seats multiplied by distance traveled) by 2.8% in 2001 and a further 3.9% in 2002. This was the first time since World War II that industry capacity declined for two consecutive years. After stabilizing in 2003, capacity growth resumed in 2004 and continued until 2008, when it declined again owing to soaring oil prices and the global financial crisis. Capacity fell further in 2009, returning virtually to 2000 levels. Between 2000 and 2009, the US commercial aircraft fleet shrank by around 700 units.

- **Domestic Market:** "The events of 9.11…marked a permanent decline in [US] domestic airline demand"—Barclays Capital, February 2009. Total domestic operating revenue per $100 of nominal US GDP declined from around US$0.823 in 2000 to US$0.687 in 2010, representing a shortfall of $18 billion for 2010 and $142 billion for the 2001-2010 period.[3] Passengers found alternatives to short-haul travel to avoid the security hassles at airports. Network carriers shed their domestic operations to regional airline codeshare partners. The regional airline share of domestic departures grew from 40% in 2000 to more than 50% by 2010.[4] Total US domestic capacity in 2010 was 4% below the level in 2000.

- **Financial Performance:** US airline revenues fell from $130.2 billion in 2000 to $107.1 billion in 2002. Losses of $19.6 billion were reported in 2001-2002. Losses for 2001-2005 totaled $57.7 billion. US carriers returned to profit in 2006-2007 ($25.9 billion), but soaring oil prices and the global financial crisis pushed them into losses of $26.4 billion in 2008-09. US airlines earned $3.6 billion in 2010, only their third year of profit since 2000. Between December 2002 and October 2005 United, Delta, Northwest and US Airways filed for Chapter 11 bankruptcy reorganization.

- **Employment:** In 2000, US passenger airlines employed 520,600 workers. By 2003, this had fallen 14.6% to 444,700. Employment levels continued to decline each year through 2010 (378,100) before climbing in the first half of 2011 to 382,900.[5]

- **Government Compensation:** On September 23, 2001, the US Air Transportation Safety and System Stabilization Act became law, providing US airlines with $5 billion in compensation (for losses incurred during the 9.11 shutdown and incremental losses sustained through 31 December 2001) and $10 billion in future loan guarantees.

US Air Carrier Domestic Revenue Passenger Enplanements 2000-2010
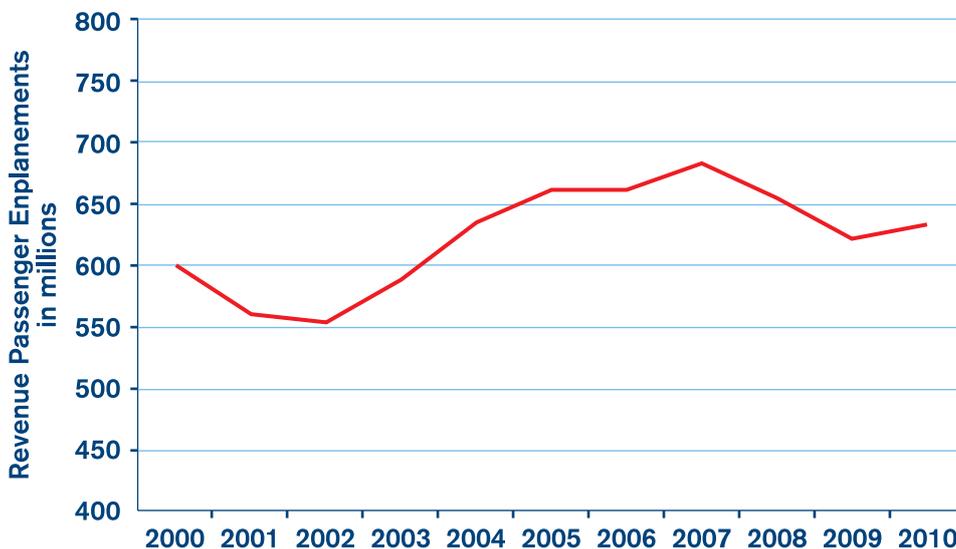
Global Impact

- **Traffic:** Global passenger traffic (tonne kilometers performed) declined by 2.7% in 2001 (see table below). Traffic did not surpass the 2000 level until 2003. It continued to rise until 2009 when, owing to the global financial crisis, it declined 2.1% year-on-year.

- **Revenues:** Global airline revenues declined from $329 billion in 2000 to $307 billion in 2001 and further to $306 billion in 2002. Revenues rebounded to $322 billion in 2003 and then to $379 billion in 2004. The next revenue dip was in 2009 when they fell $82 billion to $482 billion. In percentage terms this 14% drop was more than twice the decline experienced in 2001-2.

- **Profitability:** Airlines lost $13 billion in 2001 and a further $11.3 billion in 2002.The industry recorded its first post-September 11 annual profit in 2006 ($5 billion), and earned $14.7 billion in 2007. The following year rising oil prices and the global financial crisis plunged airlines back into the red with 2008-9 total losses of $25.9 billion.

- **Bankruptcies:** Within months of the attacks, Swissair and Sabena went bankrupt as the 9.11 shock pushed these financially weak carriers into collapse.

- **Oil price:** In the decade since 9.11 the industry fuel bill rose from 13% of costs (2001) to 30% (projected for 2011).

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011[†]
Revenues ($ billion)	329	307	306	322	379	413	465	510	564	482	554	598
Passenger growth %*	8.6	-2.7	1.0	2.3	14.9	7.0	5.0	6.4	1.5	-2.1	7.3	4.4
Passenger numbers (millions)	1,828	1,793	1,792	1,849	2,064	2,211	2,328	2,497	2,507	2,479	2,681	2,793
Crude oil price (Brent) $/b	28.8	24.7	25.1	28.8	38.3	54.5	65.1	73.0	99.0	62.0	79.4	110.0
Jet Fuel price $/b	36.7	30.5	29.1	34.7	49.7	71.0	81.9	90.0	126.7	71.1	91.4	126.5
Net profit ($ billion)	3.7	-13.0	-11.3	-7.5	-5.6	-4.1	5.0	14.7	-16.0	-9.9	18.0	4.0
Margin %	1.1	-4.2	-3.7	-2.3	-1.5	-1.0	1.1	2.9	-2.8	-2.1	3.2	0.7

* Tonne Kilometers Performed
† Projected forecast

Timeline: Main Security Threats and Changes Since 9.11

The security of air transport for both passengers and freight has been transformed since the 9.11 attacks.
The following timeline indicates the major terrorist plots and activities and the subsequent enhanced security measures.

September 11, 2001: Attacks in New York and Washington D.C.

September 2001: All international flights to and from US airspace were grounded for three days. The Federal Aviation Administration expanded the ICAO Prohibited Items List to include many household items, tools and virtually any item with a point or cutting edge. FAA Rapid Response Team on Aircraft Security created, recommends the hardening of existing cockpit doors and expediting the design, production and installation of new doors. By March 1, 2002, US major airlines complete installation of cockpit door modifications.

October 2001: The US Patriot Act enhanced the surveillance capability of the US Government, brought in the mandatory detention of suspected terrorists, and required Visa Waiver Program countries to develop machine-readable passports by October 2003.

November 2001: The Transport Security Administration (TSA) was established. It took responsibility for airport screening; use of sky marshals expanded dramatically from fewer than 100 to several thousand by 2004. Aviation and Transportation Security Act directs FAA to publish new standards for cockpit doors. Explosive detection screening for all checked baggage. Aviation and Transportation Security Act mandates the collection/transmission of Advanced Passenger Information (API) for flights into the US. Final rule takes effect in June 2005. $2.50 security fee on flights originating in US.

December 22, 2001: Foiled 'shoe bomber'.

Richard Reid, a British-born Al Qaeda terrorist, made an unsuccessful attempt to detonate plastic explosives hidden in his shoes while on board a flight from Paris to Miami.

December 2001: In the US, shoes were required to be removed and screened separately. Similar measures were introduced in other countries, but the rules were not harmonized. Cigarette lighters and matches temporarily banned in aircraft cabins.

January 2002: FAA publishes new standard for cockpit doors. US airlines must comply by April 2003. FAA subsequently orders that foreign carriers also install new doors on aircraft serving the US from April 2003.

May 2003: ICAO adopted a harmonized blueprint for the integration of biometric identification information into e-passports and other machine-readable travel documents.

November 2003: ICAO standard requiring hardened cockpit doors on international passenger flights on aircraft of more than 60 passengers takes effect. The standard was announced in March 2002.

January 2004: US began fingerprinting non-US citizens entering the country by air, with certain exemptions.

August 24, 2004: Russian aircraft bombs.

Chechen female suicide bombers blew up two aircraft departing Domodedovo Airport, Moscow, to Volgograd and Sochi. Government investigation cites the failure to follow authorized security procedures and other shortcomings for enabling the terrorists to board the aircraft undetected.

October 2004: Machine-readable passports became mandatory for countries under the visa waiver program with the US. In December, the UK began collecting advance passenger data.

June 2005: US rule mandating the collection and transmission of API for flights into the US takes effect.

Timeline: continued

August 10, 2006: Foiled 'liquid bomb' plot at Heathrow.
25 suspected bombers were arrested after British Intelligence uncovered a plot to simultaneously blow up several transatlantic aircraft.

August 2006: Liquids, aerosols and gels (LAGs) in individual containers of 100ml/3.4 oz could not be carried through security checkpoints and all liquids needed to fit into a transparent plastic bag (1 liter/1 quart size). All laptops and other electronic equipment had to be removed from bags and scanned separately. In addition the UK imposed a restriction of one piece of hand luggage per person, which remained in place until January 2008.

July 2007: US – EU passenger name record (PNR) agreement allows sharing of passenger data.

December 25, 2009: Foiled 'underwear bomber'.
Umar Abdulmuttallab, an Al Qaeda-trained terrorist, made a failed attempt to detonate plastic explosives hidden in his underwear, on a flight from Amsterdam to Detroit.

October 29, 2010: Foiled 'printer cartridge' bombs.
Saudi intelligence tipped off the CIA on a plot to blow up aircraft midair with plastic explosives hidden in printer cartridges being sent from Yemen to Chicago. The packages were intercepted in Dubai and at East Midlands in the UK.

November 2010: The TSA introduced enhanced screening using advanced technology. A more extensive pat-down procedure was also (controversially) implemented. Substantial increase in cargo screening, including accelerating implementation of a law calling for 100% screening of cargo entering the US. Many Western nations banned cargo packages from Yemen. US and UK also banned cargo flights from Somalia.

Cost of Aviation Security Today

The cost of aviation security today is estimated at $7.4 billion annually. The chart (right) shows the breakdown.

These figures do not include the cost of airport passenger screening borne by airports or government bodies such as the US TSA, which employs airport screeners at US airports.

Given that the security threats facing commercial aviation are national challenges, funding the cost of meeting them should not be the responsibility of airlines but of national governments.

Security Costs (billions)

- Passenger operations
- Cargo operations (incl. courrier/mail)
- Airport
- Aircraft
- Employee
- Catering/stores
- Miscellaneous

2.813 | 2.03 | 0.17 | 0.364 | 1.46 | 0.446 | 0.101
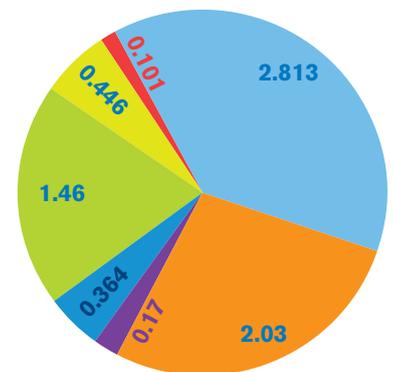
The Impact of 9.11 on Airline War Risk Insurance

- On September 17 2001, all aviation insurers issued a seven-day notice of cancellation of the air transport industry's third party war risk insurance. This action was unprecedented and threatened the shutdown of the entire aviation industry.

- The private sector quickly returned to the market, but at a considerably greater cost to airlines—an additional $2 billion in premiums for far more limited coverage than that provided by some states. Some states took stop-gap measures to aid airlines during the initial period. For example, the Federal Aviation Administration continues to provide war risk insurance to meet US airlines' needs. This, however, has created distortions in the commercial marketplace, putting non-US airlines at a competitive disadvantage.

- Efforts by the International Civil Aviation Organization (ICAO) to revise the Rome Convention to create a victim compensation fund concluded in 2009. The revised Convention needs 35 signatories in order to come into force and to date just eight ICAO member states have signed it.[6]

- As a result, the airline industry remains extremely vulnerable to a future disruption of cancellation of war risk insurance.

Data Sharing

Advanced Passenger Information

Following 9.11, many countries mandated that airlines provide information about their passengers ahead of their arrival at their destination. Previously, some airlines had provided this data, known as Advanced Passenger Information (API), to facilitate the customs and immigration process, not for security purposes. This data initially comprised limited biographical information from government-issued travel documents such as passports. Prior to 9.11 only a handful of countries requested such data and it was voluntary on the part of airlines. Currently more than 60 countries mandate the provision of API. The figure will continue to increase.

Over time, some countries have increased the amount of data they require and added new items that may not be easily collected—such as a passenger's local address at their final destination. There is a World Customs Organization standard for API that ICAO officially recognizes. Unfortunately not all countries abide by or observe it, creating a major compliance headache for airlines. Furthermore, new requirements such as real-time interactive API at check-in are adding significant development costs to airlines.

Passenger Name Record data

In addition to API data, an increasing number of governments require airlines to provide Passenger Name Record (PNR) reservation data. This has been controversial as some governments view such requirements as violating privacy and confidentiality rights. Airlines have been caught in the middle of disputes between different countries over access to PNR data, most notably in 2006, when the US and EU clashed over the issue, threatening airlines' ability to provide air service between the US and EU countries. An agreement was not reached until 2007 and a recent EU court decision will require that the terms of the 2007 agreement be revisited. A global solution on the sharing of PNR data is required so that carriers can comply with one country's requirements without fear of violating another country's laws.

IATA 'Checkpoint of the Future'

The IATA 'Checkpoint of the Future' offers a vision for how airport security can be made more effective and convenient for passengers.

Current checkpoint:

The current airport checkpoints were developed in the 1970's to stop hijackers carrying metal objects. While processes have been enhanced and new technology grafted into the checkpoint, it remains largely unchanged. Screening is one-size-fits all with no differentiation based on the level of risk presented by the passenger.

Checkpoint of the Future:

The checkpoint combines two distinct elements: classification of passengers through risk assessment, and advanced screening technology.

Risk assessment of passengers is a vital step towards focusing on catching dangerous people not just dangerous items. Passengers approaching the checkpoint will be directed to one of three lanes, depending on the information scanned from their passport or ticket.

- **'Known Travelers'**, who have registered and completed background checks with government authorities will have expedited access through known traveler lanes.
- **'Normal' passengers** will be sent through a standard security lane.
- **'Enhanced security' travelers**, about whom little advance information is available or who are on a government checklist, will be sent to a lane where they are searched more thoroughly. A random element will ensure that it is impossible to cheat the system.

Once at their lane, passengers will identify themselves by way of a biometric check, such as an iris scan. They will then proceed through the checkpoint where advanced x-ray machines and chemical sniffers will clear them to proceed. The aim of this is to ensure that no one needs to remove clothing, laptops, liquids or other inconvenient steps. It should also greatly reduce the need for physical search. After identifying themselves, passengers with no abnormal findings should be able to proceed through the checkpoint without stopping.

The project is at a conceptual stage with a mock-up having been displayed at the IATA Annual General Meeting in Singapore in June 2011. Some of the technology needed for the checkpoint is available today, for example metal detection and shoe scanning. Others, like stand-off explosive detection systems, have a development period of up to seven years. Full details of the project can be found at www.iata.org/checkpoint.

The risk-assessment of passengers is ready to be brought into operation. Several countries are already preparing their own 'known traveler' projects for launch. So aspects of the Checkpoint of the Future will become reality in the near future.

[1] Federal Aviation Administration's ATADS database.

[2] Except where noted, the financial and traffic statistics on US airline industry performance are from US Department of Transportation data compiled by Air Transport Association.

[3] Air Transport Association; Barclay's Capital quotation appears in an ATA document.

[4] US Regional Airline Association.

[5] US Bureau of Transportation Statistics.

[6] The eight are: Congo; Côte d'Ivoire; Ghana; Panama; Serbia; South Africa; Uganda; Zambia.

www.iata.org