

## Aviation security: the threat without and within

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### Overview

In today's increasingly inter-connected world, air transportation is arguably the most critical facilitator of the flow of goods and people across borders. Long-term projections suggest the significance of air travel to the global economy will continue to steadily grow over the next two decades, driven by factors such as improved living standards, urbanisation, the reduced cost of flying and increasing availability through the expansion of air carriers and airports.

Global passenger demand in 2014 rose 5.9% compared to 2013 according to the International Air Transportation Association (IATA). In real terms, some 3.3 billion passengers used air travel in 2014, a figure that is projected to more than double to 7.3 billion by 2034 – the equivalent of moving the current world population by air annually.

The increased demand and availability of this critical infrastructure must be matched with improvements in aviation security, both landside and airside. Significant developments in aviation security have tended to be retrospective rather than proactive; for example, the introduction of checked baggage screening following the 1988 Lockerbie bombings, or enhanced 'hardening' of airport perimeters following the narrowly failed 2007 Glasgow Airport bombing.

Several recent high-profile incidents involving civilian aircraft in 2014 and 2015 continue to demonstrate that there is no space for complacency in aviation security in the post 9/11 era. The unresolved disappearance of Malaysia Airlines flight 370 in March 2014, the shooting down of Malaysia Airlines flight 17 over eastern Ukraine four months later and the deliberate crashing of Germanwings flight 9525 by co-pilot Andreas Lubitz in March 2015 are only the starkest reminders of this. Furthermore, the terrorist threat to the aviation industry remains very real. In 2014 an issue of Al-Qaeda's Inspire magazine called upon the "lone mujahedeen" to blow up US and UK airliners.

Facing complex and evolving security challenges emanating from the intersection of both internal and external factors, the aviation sector needs to find a measured, yet robust, response that provides maximum passenger security without infringing upon civil liberties and personal privacy.

### Landside threats

Ensuring aviation safety and security starts on the land; in and around airports. According to a March 2015 report issued by Frost & Sullivan the airport security market's revenue totalled USD8.22 billion in 2014 and is expected to reach USD12.67 billion by 2023, in line with growing passenger numbers and the need for enhanced airport security. Ranging from environmental disasters to criminal and terrorist attacks, landside threats to aviation are hard to overstate.

One of the most pressing concerns for national governments, regulatory bodies and airline operators remains the threat of a terrorist attack targeting aviation. In June 2015 security measures at US and European airports were stepped-up following intelligence suggesting Al-Qaeda linked militants in Yemen and Syria are likely plotting attacks on civilian aircraft. Though the intelligence did not indicate an imminent attack, it highlights the multi-faceted nature of the threat and shows international terrorist organisations – particularly the Yemen-based Al-Qaeda in the Arabian Peninsula (AQAP) and Al-Qaeda linked operatives in Syria – remain intent on carrying out attacks against the aviation industry.

In December 2014 AQAP released new bomb-making instructions and directions to militants on how to evade airport security measures, prompting the US Department of Homeland Security (DHS) to enhance screening procedures at airports.

Despite this, a recent internal investigation carried out by the US Transportation Security Administration (TSA) exposed concerning security failures at some of the country's busiest airports. According to a report by *ABC News* published in July 2015, covert TSA agents successfully smuggled mock explosives and banned weapons through airport security on 67 out of 70 occasions; an alarming 95% success rate. In one telling example, a TSA undercover investigator with a mock explosive taped onto his back was let through after setting off an alarm at a magnetometer and being patted down.

Similarly, in June 2015 the DHS Office of Inspector General revealed the TSA granted access to restricted airport areas to 73 aviation workers with "links to terrorism", in part due to the agency's limited access to terror list information. Following the release of both reports uncovering security deficiencies at US airports, a spate of at least five bomb threats subsequently found to be hoaxes disrupted US domestic and international flights on 02 June.

Across the Atlantic, lax security measures have also been identified in Germany, which recently came under scrutiny following the incident involving Germanwings flight 9525. In May 2015 the EU stated its intention to refer Germany to the European Court of Justice after the country failed to comply with legislative demands for regular monitoring of aviation security checks at airports. Additionally, a report in *Der Spiegel* warned security personnel at Frankfurt airport failed to intercept half of all weapons and dangerous objects going through screening in a test conducted by the EU in December 2014.

## Airside threats

The crash of Germanwings flight 9525 marked a watershed moment in aviation security, highlighting the devastating impacts of security solutions that fail to adopt a holistic threat assessment. In this case, standard post 9/11 in-flight security measures include the fitting of reinforced cockpit doors that can only be opened from the inside. This follows the assumption that future threats would be passenger-side (following the 9/11 threat model), rather than derive from within the cockpit. These security measures were exploited by Germanwings flight 9525 co-pilot Andreas Lubitz, who locked the captain out of the cockpit before deliberately crashing the aircraft into the French Alps.

Within days of the incident, operators such as Virgin Atlantic, easyJet, Monarch and Alitalia revised their flight deck policies, which now stipulate that two crew members have to be in the cockpit at all times during flight. By way of showing that risks are difficult to manage once airborne, this reactive approach to threats has prompted calls for tougher psychological tests for pilots and flight crew.

Another area of concern that will attract growing attention is the aviation sector's perceived vulnerability to cyber attack. According to the UK Centre for the Protection of National Infrastructure (CPNI), cyber security is an evolving issue, as the vast majority of civil aviation companies "rely on electronic systems for critical parts of their operations, and for many organisations their electronic systems have safety-critical functions".

In May 2015 security researcher Chris Roberts made claims alleging he was able to hack into the in-flight entertainment system up to 20 times on separate flights, and on one occasion managed to cause the aircraft to veer slightly off course. Though aviation security experts subsequently rebutted and even ridiculed these claims, the incident sparked an on going debate regarding cyber security, and critically highlighted the aviation industry's lack of preparedness in addressing cyber crime.

## Conclusion

Addressing these issues successfully under budgetary constraints will be a difficult undertaking for the aviation industry and one that calls for a reassessment of the security strategy for the 21<sup>st</sup> century. Though Tony Tyler, IATA's CEO and Director General, reminded us "flying has never been safer" during the group's 71<sup>st</sup> annual meeting in Miami, more work is required to drive the risks further down. While gaining a sound understanding of the likely threat origin and type is the logical first step, the aviation industry must adopt integrated and proactive, rather than reactive, security solutions.

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