Aviation Strategic Review, September 2014

A series of recent high-profile aviation security incidents have focused scrutiny on the aviation industry. The economic and political role of commercial aviation makes airports, aircraft and supply chains a highly desirable target for new, unconventional opponents, such as terrorists, insurgents and single-issue groups, as well as facing political and environmental risk. Threats are best mitigated by thorough risk assessment within a wider risk management framework, incorporating the gathering of reliable and actionable intelligence to enable effective regulations and security measures as part of a duty of care for customers and employees.

Key Observations

- Technological advances, the proliferation of weapons of mass destruction and the emergence of terrorism as a global phenomenon have enabled threats to the aviation industry to increase in reach, frequency and intensity.
- Geopolitical tension, terrorism, bouts of civil unrest and economic and political developments pose significant risks, particularly to global airline alliances, with airlines facing a further burden of enhancing and improving their occasionally disparate operations divisions.
- Aviation is a global enterprise with a distributed infrastructure and multiple access points. Successful attacks can inflict casualties and grave economic damage, attracting global attention and damaging investor and consumer confidence.
- Risks to the aviation sector can be mitigated through analysis of political, security and business risks, a comprehensive risk assessment and the effective design, implementation and management of security plans and procedures.

Geopolitical Tension

The downing of Malaysia Airlines flight MH17 in July 2014 by suspected rocket fire from pro-Russian separatists in Ukraine highlights an emergent threat from armed groups. Despite several historic incidents of civilian aircraft being downed by military aircraft or surface-to-air (SAM) missiles, most resulted from mistaken identification or opportunistic attacks using MANPADs (man-portable air-defence systems). Weaponry capable of reaching 30,000ft, including vehicle-mounted radar homing missiles, had been considered unobtainable for use by militant groups. More than 40 civilian planes have been hit with ground-based missiles in conflict zones since the 1970s, but have involved small aircraft flying at low altitude. Ground conflicts are not necessarily a direct threat to the skies above and most have little impact on commercial flights. However, the downing of MH17 prompts concern that armed groups in conflict zones such as Iraq, Syria, Libya, Mali and Afghanistan could present a credible threat to commercial airlines should Buk-type missiles also fall into their possession. Airlines and regulators must consider whether armed groups in these areas possess the sophisticated weaponry required to down an aircraft and their motivation and capacity to use such devices.

Militia clashes at Tripoli International Airport (TIP), Libya

Libya Dawn, an alliance of militias headed by Misratan brigades, seized control of TIP on 22 August following a month of clashes over the facility. Libya Dawn has now seized control of government ministries and the US embassy compound, setting up a rival government to the official elected body based in Tobruk. At least 200 people have been killed across Tripoli with clashes focusing in the southern suburbs near TIP, particularly Salah al-Deen and Abu Salem districts. TIP has frequently been targeted in attacks, with several rockets landing on the runway in May, forcing brief closures.

The clashes are a culmination of rising tension between rival militia groups that has sporadically led to nationwide violence since the end of the civil conflict in 2011. Broadly categorised into Islamist and liberal groupings, Misrata and Zintan have emerged as centres of militia power, intent on maintaining their influence by the use of force. The ousted Zintani militia controlled TIP since 2011. Misrata-based militias sought to unseat the group from TIP after efforts to have Mitiga airbase, which it controlled, named as the main gateway to the city failed. The spike in violence is also linked to Misratan concerns over the declining influence of Islamists in the new government, triggering action to maintain and expand the privileged position they currently enjoy through political connections and a large armoury.

The threat to aviation is exacerbated by weapons proliferation of an array of militias and the extremely limited capacity of the state to enforce the rule of law. Since the looting of Gaddafi regime stores in 2011, heavy ordnance is suspected to have fallen into the hands of militant groups, including MANPADs. Tanks, mines and machine guns are unaccounted for, with government forces out-gunned by revolutionary militias.

Weekly monitoring of the Libya security situation by G4S Risk Analysis resulted in a flag carrier airline withdrawing operations from the country in November 2013. Focusing on threats to the main international airports, analysts monitored increased kidnappings on the airport road and growing insecurity in the capital.

No fail-safe countermeasure

Israel's El Al is to be the first airline to equip commercial aircraft with limited defence measures, but systems such as the Directed Infrared Countermeasure (DIRCM) fitted directly onto an aircraft are too expensive for wide application. The most effective countermeasure for commercial airlines is to avoid flight paths over conflict zones where armed groups are in possession of surface-to-air missiles. However, with different advice offered and followed by regulators and airlines, there is no global standard. The International Civil Aviation Organisation (ICAO) had issued a hazard warning up to 32,000 feet for the east of Ukrainian airspace following an escalation of military air operations, but MH17 was flying at 33,000 feet when it was hit.
Commercial flight routes are well established. Modifying flight procedures can reduce safety margins, burn fuel and may be unnecessary. The ICAO coordinates international efforts and requires national civil aviation authorities to be responsible for reviewing the threat level in their state. Reliable, actionable intelligence and threat analysis is critical to identify potential conflict hotspots before they emerge as a credible threat. Aviation security programmes should be adjusted according to risk assessments, including regular liaison between regulators and airlines to develop risk mitigation measures. Airlines should also consider the voluntary sharing of intelligence.

Terrorism

The threat of terrorism impacts on travel and business, with states such as Afghanistan, Pakistan, Iraq and Kenya facing a high risk. Several ongoing conflicts mean terrorist interest in attacking the aviation industry is unlikely to dissipate. The terror threat evolves as intentions and capabilities change and countermeasures are implemented. Techniques are adapting, including the modality of planning, complexity of attack and style of execution. The type, location, and frequency of attacks cannot be reliably extrapolated from historical patterns, meaning current threats must be regularly reassessed, particularly in challenging environments.

Islamist militants typically target civilians, government or foreign assets, damage infrastructure and seek global media coverage. The trend towards targeting airports, crew and offices has increased over the past decade due to enhanced security measures making access to aircraft difficult and has resulted in a shift in modus operandi toward smaller-scale, opportunistic attacks. Airport security forces are now required to address the threats of firearms, bombs, suicide bombers and hijacking. Enhanced airport perimeter security rests largely on fences, cameras and alarms. However, such measures are expensive and in higher-risk environments, vulnerabilities will exceed resources where there is no guarantee of providing an adequate deterrent. Terrorist groups are continually devising other methods of infiltration and assessing weaknesses to exploit in any countermeasures. The development of allegedly undetectable explosive packages is forcing officials to ask passengers to prove that electronic devices have power.

Perimeter breaches continue to occur sporadically at airports, including at New York’s John F. Kennedy International Airport (JFK), but the threat is exponentially greater at airports in high-threat environments. Responsibility therefore falls on the timely collection and dissemination of intelligence to counter terror threats before they emerge, aided by adequate access control procedures to ensure ID and area permissions are strictly enforced.

Intelligence failure at Jinnah International Airport (KHI), Karachi, Pakistan

On 8-9 June 2014, 10 heavily armed Tehrik-i-Taliban Pakistan (TTP) militants staged an assault on Karachi's Jinnah International Airport (KHI) with the aim of destroying or hijacking planes and taking hostages. The ensuing six-hour gunfight with security forces left 36 people dead, including the assailants. At least a dozen Pakistani airport security officials were killed in the attack, including four employees of Pakistan International Airlines (PIA). The prime minister’s spokesman said “the terrorists had a plan to bring down our aviation industry”.

Security at Pakistan’s largest airport failed at all stages, most notably the inadequate levels of protective security at entry points to the site. The militants exposed vulnerabilities in KHI’s perimeter to gain access to the air operations area at the old terminal used for cargo and VIP flights at KHI and were not challenged by airport security. The breach and subsequent attack highlights the attraction of the aviation sector as a target, but also its high vulnerability.

The attack exposes deficiencies in the security apparatus’ ability to keep key installations safe. Pakistan’s National Counter-Terrorism Authority (NACTA) attributes the attacks to a failure of intelligence agencies to track suspected terrorists and terrorist activities. The number of attacks and attempted attacks this year indicate the level of preparedness has not increased. However, the spectre of insider threats remains high. There are believed to be 6,000 more passes than the number of airport employees, distributed with the approval of the Civil Aviation Authority.

Differing agendas within the military and intelligence agencies have led to accusations of insider information that has allowed TTP to carry out other attacks, including at Mehran naval base in Karachi in 2011 and the gun attack on a PIA plane at Peshawar’s Bacha Khan International Airport (PEW) on 25 June 2014. The incidents raise concerns about the viability of police and intelligence agencies securing densely-populated residential areas below the flight path, which continues to pose a problem in less-developed countries. Government officials will be concerned over the negative impact the attack will have on investor confidence, with several airlines temporarily suspending flights to Karachi and Peshawar in the immediate aftermath of the assaults.

Insider threat poses a primary focus of attack

The potential for an insider threat is greatest at airports with limited governance capability in low-income economies. The ability of countries in sub-Saharan Africa and South Asia to effectively screen prospective airport employees is hampered by poor and incomplete intelligence databases. Nevertheless, the US is not immune to breaches and individuals with ties to street gangs have gained employment, using their position to engage in drug trafficking and baggage theft. The African Civil Aviation Commission (AFCAC) notes that security breaches committed at most airports have the direct or indirect involvement of airport staff, including the surveillance of sensitive areas, disclosure of sensitive security information and the bypassing of security checkpoints. Potential threats range from a disgruntled employee to those with nationalist, monetary and ideological motivations.
Airlines can make a significant contribution to countering insider security threats through rigorous personnel security practices. However, regulatory agencies, airport authorities and the airlines themselves must continually review their approach. Despite adding to airline operating costs, gaps still exist within airport systems, which could harbour insider security threats ranging from vendors to security personnel.

### Threats in Africa

Following Kenya’s military intervention in Somalia, the country is now a direct target for attacks by al-Shabaab. Security at Nairobi’s Jomo Kenyatta International Airport (NBO), the busiest airport in east and central Africa, has been raised, although authorities still need to commit to smart strategies to keep out insider threats. On 16 January 2014, an improvised explosive device (IED) was thrown from a passing car at NBO’s Java Café, with smoke grenades reportedly discovered in an airport toilet. Later that month, Nairobi police arrested nine people suspected of involvement in a passport and visa counterfeiting ring, including a Kenya Airways employee. Police say they are unaware of how many people have passed through airport security using the fraudulent documents.

Nigeria, which is also facing an Islamist insurgency from Boko Haram, has a multitude of threats at its busiest airport, Lagos’ Murtala Muhammed International Airport (LOS). In February and March 2013, armed gunmen staged deadly raids on money vans. In August 2014, police arrested a suspected Boko Haram member after he allegedly attempted to bomb the Nigerian Airspace Management Authority (NAMA) office in Lagos. Airports and aircraft in Africa will remain a strategic and vulnerable target for militants.

### Political and Business Risk

The financial crisis in 2008 and the Arab Spring in 2011 shifted the political and business risk environment. In advanced economies, governments are faced not only with socio-economic inequalities, but also high levels of sovereign debt, which has been exacerbated by the recent Eurozone crisis. Elsewhere, state action and unrest pose a direct threat to business continuity, evidenced by the aviation industry’s sensitivity to fluctuations in fuel prices. Lax safety standards and a poor regulatory regime also expose companies to risk, particularly in Asia, which has experienced considerable aviation growth in recent years. In Indonesia, such factors contributed to a series of major incidents and aircraft losses during the 2000s, forcing company executives to change their behaviour after some 50 Indonesian airlines were banned from EU airspace.

Uncertainty can be managed. Airlines that invest in developing political capabilities, resources and risk mitigation strategies are better placed to sustain competitive advantage, despite operating in challenging environments.

### Fund repatriation to airlines in Venezuela

Venezuela’s political and economic environment is indicative of the dangers a centrally managed economy and strong political rhetoric can present for the aviation industry. With debts of more than USD 4.1 billion to major airlines, Venezuela risks isolation from the global economy. The debt stems from legislation forcing airlines to sell tickets in bolivars, the local currency, with the government later repatriating profits to airlines in US dollars. However, the government has failed to reimburse the airlines.

This business risk comes amid a wider nationwide crisis. Anti-government protests since February 2014 have centred on rising violence, high inflation and the scarcity of basic goods. Although the security situation has not impacted airline operations, the government, facing tight financial constraints, is prioritising national politics and quelling domestic dissent over re-paying airlines. In response, aviation restrictions or suspensions have reduced international air services from Venezuela by 49 percent since 2013, further deepening the crisis. If the economic crisis worsens, protests are anticipated to increase and the government will resort to increasingly authoritarian measures. Combined with the outstanding debt, the operational environment has the potential to further worsen for airlines still operating here.

Venezuela offers valuable insight into the risks of operating in countries where the government retains tight fiscal control and prioritises politics over the economy. Argentina also suffers from a poor economic environment, exacerbated by the government’s recent debt default. Severe economic constraints on aviation operations are set to continue as long as the government uses the current situation for political purposes and fails to address the root crisis.

### Environmental risks often fall outside of airline control

Environmental disasters, including tsunamis and volcano eruptions, can impact operations for an indeterminate length of time, as witnessed with the Bardarbunga and Eyjafjallajokull eruptions in Iceland in September 2014 and 2010, respectively. Access to appropriate detection technology can help airlines to determine whether levels of ash in the atmosphere are safe enough to fly in. Advanced warning systems, along with business continuity planning, can mitigate the commercial impact.

### Medical risk increasingly mitigated through avoidance

Airlines are becoming more risk-averse in cancelling routes to areas affected by transmittable diseases, particularly when national authorities request flight suspensions. Since late July 2014, airlines have cancelled more than a third of international flights to Sierra Leone, Liberia and Guinea over fears that an outbreak of the Ebola virus could spread. This is in spite of the World Health Organisation (WHO) urging airlines to keep routes operational, given aviation constitutes a low risk for Ebola transmission. There has been only one
known transmission via air travel and airlines are asked to assist in screening and notify authorities if they suspect Ebola cases. Ebola is just the latest medical outbreak to affect airlines, following the respiratory virus SARS in 2003 when airlines issued masks and MERS in 2013/14.

**Civil unrest requires a dynamic understanding of threats and vulnerabilities**

Civil unrest and disturbances pose risks for most businesses, with impact varying by event, proximity and business sector. Airport expansion and the environmental impact of flying have triggered a number of anti-airport campaigns by environmental activists such as Plane Stupid, HACAN Clear Skies and Greenpeace, who notably established a climate protest camp at London Heathrow (LHR) in 2007. All stakeholders in the aviation sector need to provide specific situational awareness, engage in comprehensive risk assessment and implement mitigation measures in the face of evolving security challenges.

---

**Civil unrest at Bangkok’s Suvarnabhumi Airport (BKK)**

During the 2008 political crisis, the capital's two main airports, BKK and Don Mueang (DMK), were seized by anti-Thaksin Yellow Shirt protesters, resulting in the grounding of all flights and stranding tens of thousands of foreign travellers. The military's refusal to follow government orders to evict the protesters contributed to the crisis. Some commercial flights were diverted to nearby military airports, such as U-Tapao, 140km south-east of Bangkok. Damage to the economy was estimated at over USD 8.5 billion, excluding the loss of potential foreign investment.

Although security measures at the airport have since improved, political risk still persists. Both Yellow Shirt and Red Shirt protesters have a history of disrupting transport infrastructure to underscore their political demands. In January 2014, during the “Bangkok Shutdown” campaign, Yellow Shirt protesters threatened to blockade the office of the Thai air control body, Aerotai. Although never materialising, there was the potential to disrupt in- and out-bound flights nationwide.

G4S Risk Analysis monitors political developments in Bangkok, providing up-to-date intelligence for contingency planning. During the 2014 political crisis, a global logistics company operating from BKK relied on daily management briefings to ensure business continuity and staff safety, preventing the costly diversion to neighbouring airports and road transport.

---

**Assessment**

The downing of MH17 has changed the risk landscape for airlines and airport authorities. From both a consumer and government perspective, ensuring security of aircraft and airport facilities will become a more inclusive and international process. Policy and resource-allocation decisions will ideally be at the discretion of aviation security agencies, who are best placed to tailor policies and mitigation measures to changing threats and different situations at individual airports which vary in size and configuration. Airlines and supply chains will increasingly need to understand political, security and business risk in specific locales, in addition to transnational routes.

G4S Aviation consultants have assessed the capability development needs of civil aviation at major international airports around the world, including Iraq, Afghanistan, the US and much of Europe, as well as national air carriers in high-risk environments. A proven record involves developing security concepts, plans and procedures, including implementation and management. Initial gap analysis and assessments range from national framework legislation to local airport programmes, screening methods, staff training needs, equipment and technology requirements, as well as emergency and contingency planning. Consultancy is supported by site-specific analysis and assessment of risks facing the aviation industry both now and into the future.

---

**Security framework at Baghdad International Airport (BGW), Iraq**

Threats from terrorism continue to impact travel and business, and as such Iraq continues to be a high risk country. G4S Aviation consultants have worked closely with the government since 2010 to ensure the safety and security of BGW. The expansion of industry in 2013 made the government keen to encourage foreign air carriers back to Iraq by establishing a secure gateway via the largest airport in the country, despite an escalation of sectarian violence. This was key in bolstering overall confidence, as part of the framework for infrastructure development and to ensure the safety of expatriates.

Within 30 days, G4S Aviation consultants formulated a plan to create a full airport security programme, develop an implementation plan and transition team and design a management and support structure, including operational management, scheduling, compliance, finance, HR, payroll and training. A full security posture assessment was also conducted to ensure business planning could be tailored effectively. This was achieved with no reduction in service levels. Within three months, foreign air carriers resumed flights to Iraq, bringing with them investment and a boost to the economy. G4S has subsequently partnered with the Iraqi Civil Aviation Authority and Ministry of Transport to further improve operational efficiency and service delivery. Work included assistance with developing their aviation legal framework by providing guidance in line with international standards, such as ICAO Annex 17, providing guidance on drafting Airport Security Programs and a National Civil Aviation Security Program and introducing new screening technologies, such as advanced X-ray systems. In April 2013, G4S Aviation consultants conducted a full-scale review of the airport in line with ICAO Annex 17 SARPS and the Iraqi Civil Aviation Authority requirements.

G4S Risk Analysis provides bespoke daily security risk reports on BGW and Iraq to airlines and other foreign firms. Clients are constantly informed of evolving threats to operations, including the emergence of the jihadist group, the Islamic State (IS), which in June 2014 threatened to attack Baghdad.

---

**End Note:** This report was produced by G4S Risk Analysis in collaboration with our Aviation consultants.