

2015

# *Aviation Security Market Background*

**Airport Perimeter Security**

**Airport Terminal Surveillance**

**Intrusion Detection**

**No-Fly Passenger Pre-Screening**

**Travel Document Checker**

**Checked Baggage Screening**

**Air-Cargo Screening**

**Command & Control**

**Air Marshals**

**Bomb Appraisal Officers**

**Random Employee Screening**

**Hardened Cockpit Door**

**Flight Deck Officers**

**Cabin CCTV Surveillance**

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***August 2015***

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**Washington D.C. 20004, 601 Pennsylvania Ave., NW Suite 900,  
Tel: 202-455-0966, [info@hsrc.biz](mailto:info@hsrc.biz), [www.homelandsecurityresearch.com](http://www.homelandsecurityresearch.com)**

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# 1 Market Background

## 1.1 Aviation Security Terror Threats

Threats to civil aviation are numerous, complex, and adaptive. While conventional military threats in civil aviation continue and is likely to increase in times of international tension or conflict, the greatest current threat as demonstrated in the Heathrow plot of August 2006 reminds us that the continuing danger and therefore the focus of the strategy is terrorism.

Globalization, technological advances, the proliferation of new aviation terror technologies, and the emergence of terrorism as a global phenomenon have enabled threats to civil aviation to extend in reach, accelerate in speed, and increase in potential impact. Aviation is a global enterprise with a distributed infrastructure and multiple access points. Successful attacks on civil aviation can inflict mass casualties and grave economic damage and attract significant public attention because of the impact on a modern transportation system.

Intelligence on threats to civil aviation plays a critical role in assessing terrorist groups' intentions and capabilities and requires regular updating and review to ensure that governments, the private sector, and the international community are taking appropriate countermeasures. However, even the best intelligence will not uncover every specific terrorist plot because of terrorists' distributed network, and their efforts at operational secrecy.

Threats focused on civil aviation can be analyzed in two ways: by originator and by targets and tactics.

There are three primary categories of threats: 1) to and from aircraft; 2) to the aviation infrastructure; and 3) from hostile exploitation of cargo.

Threats to and from aircraft can be disaggregated into 3 categories of threats:

- Large passenger aircraft
- Cargo aircraft
- Small aircraft, including light private and corporate aircraft, and helicopters

## 1.2 Aviation Security Strategy

The terrorist attacks of September 11 exploited several shortcomings in US aviation security. The hijackers were not stopped from boarding aircrafts by pre-screening systems or security inspections and were able to gain control of the aircraft once airborne. As a result of this attack, all governments of the world upgraded their aviation security means and methods. In the USA, a new federal agency was created, the Transportation Security Administration. In order to ensure the security of passengers and cargo aircrafts, aviation security agencies worldwide hired an army of security screeners totaling about 130,000 personnel.

Governments provided their aviation security agencies with over \$65 billion over the 2001-2008 period for enhanced aviation security. Today, practically a fraction those costs are financed by passenger security surcharges which cost between \$3,5 and \$25 per passenger trip.

Despite the progress and the vastly heightened public awareness to the threat of hijacking, major vulnerabilities still remain in the aviation system. Several of the layers of defense have significant security gaps.

In the U.S. and other countries, serious deficiencies have been revealed in many of the security "layers" the Aviation Security Administration has put in place. The aviation security agencies must address ongoing problems with aviation security including:

- Concerns about the efficacy of airport screening
- The lack of security for air cargo
- The potential threat from shoulder-fired missiles
- Unauthorized access to aircraft or other secure airport areas
- Passenger screening
- Employee screening vulnerabilities

Numerous undercover investigations by independent security assessment groups and agencies (e.g., DHS Office of the Inspector General, the Government Accountability Office [GAO]) found that prohibited items - including firearms and simulated explosive devices - are passing through Aviation Security Agency screening checkpoints. Further, comparisons with similar investigations conducted before aviation security agencies started its screening operations show that much improvement is required. Statements by Aviation Security Agency employees suggest that a number of checked bags are not even subjected to screening measures, in one case alleging that "federal baggage screeners run only a small portion of suitcases through explosives-detection devices".

At this point, screening systems are not capable of routinely catching passengers that have hidden explosives on themselves. Appropriate screener staffing levels, next-generation detection technology, and a stronger training program will decrease some of these deficiencies.

Figure 1 - Aviation Security Layers of Security



(Sources: DHS, HSRC)

More than 50% of the world's airline traffic passes through the US. It is estimated (in the absence of a long-term economic crisis) that by 2018, airlines will have nearly doubled their fleets from their current size. The security implications are obvious to aviation security planners.

Ideally, airports should be defended by circles of threat deterrence, threat detection and threat-handling technologies and activities. Outer perimeter control is the first line of defense, and sky marshals on board flights are the last line of defense. No single method is perfect; the assumption is that integrated together, they do the job.

We assume that terrorists will demonstrate a capacity to identify detection methods and develop appropriate counter measures. There will be a continuing cat-and-mouse effort to keep defense technology ahead of terrorist and criminal abilities.

### **1.3 Aviation Security Market Demand Side**

The main market (demand) segments for security equipment dealing with detection and identification of goods in the air transport sector are the following:

#### **1.4 Airports**

Airports, being majorly responsible for passengers' security and also in dealing with cargo operations, are some of the major purchasers of screening and scanning equipment. As stressed by the industry, their behavior as purchasers of security equipment is technology neutral, not favoring any provider but the end mission of the equipment.

#### **1.5 Airlines**

Air cargo security is primarily a responsibility of the airlines themselves and they responsible for cargo screening and security-control at airports. When the supply chain security cannot be guaranteed or is 'unknown', cargo is systematically screened. Some airline companies however, still screen all cargos even if the supply chain is guaranteed to be "secured". In airlines' hubs (i.e. British Airways in Heathrow, Air France in Charles de Gaulle, KLM in Schiphol etc.) there is a tendency for the airlines to manage their own security operations.

#### **1.6 Freight Forwarders**

Freight forwarders purchase a wide variety of equipment from scanners, detection and recognition devices to CCTV systems, biometrics or bar code based tracking devices for their operations. The equipment they use depends mainly on the type of goods they transport or store, with high-risk cargo needing a whole range of security equipment devices. Their role as customers may become more important depending on how the supply chain security is organized (i.e. existence of known- shipper programs, their designation as 'regulated agents', etc.).

#### **1.7 Customs Services**

Customs Services found in all international airports, normally have their own screening and scanning equipment. Their priorities for security screening relate to drugs, counterfeit goods, nuclear materials, weapons, etc. They do inspect cargo depending on the potential risk involved.

## 1.8 Security Service Providers

Private security companies are the main end-users of screening and scanning equipment. In some cases, the service providers are also responsible for purchasing the equipment used to carry out their operations.

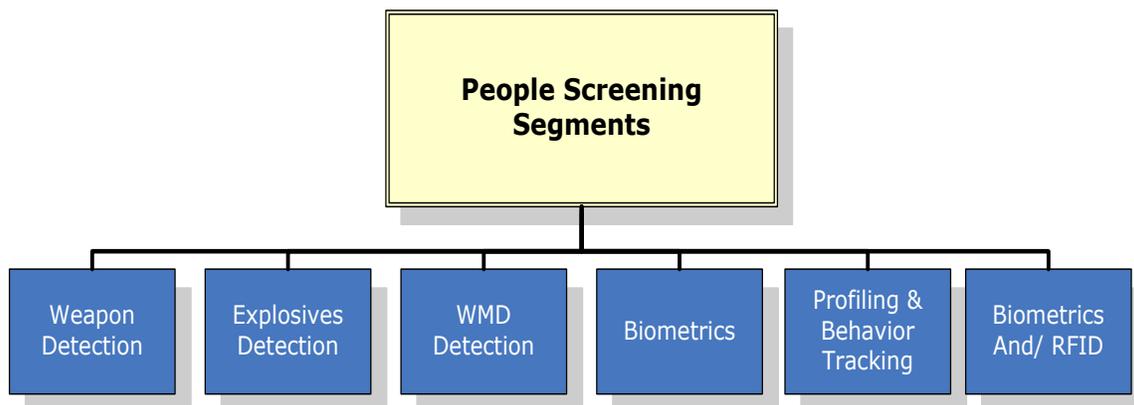
## 1.9 Aviation Passenger Screening Technologies Outlook: 2015-2020

As a first step, the aviation security agencies and airport authorities need to conduct together a comprehensive study to determine exactly how many screeners are actually necessary to implement appropriate security procedures at all checkpoints. To be as accurate as possible, the study must take into consideration analysis of current passenger traffic that varies regularly with flight schedules and seasonal demand.

The passenger–screening segment of the anti-terrorism industry includes six major modalities:

- Weapon Detection
- Explosive Detection
- Weapons of Mass Destruction (WMD) Detection
- Authentication (mainly Biometrics)
- Threat Analysis Algorithms
- Profiling and behavior tracking

**Figure 2 - Airport Passengers Screening – Segments**



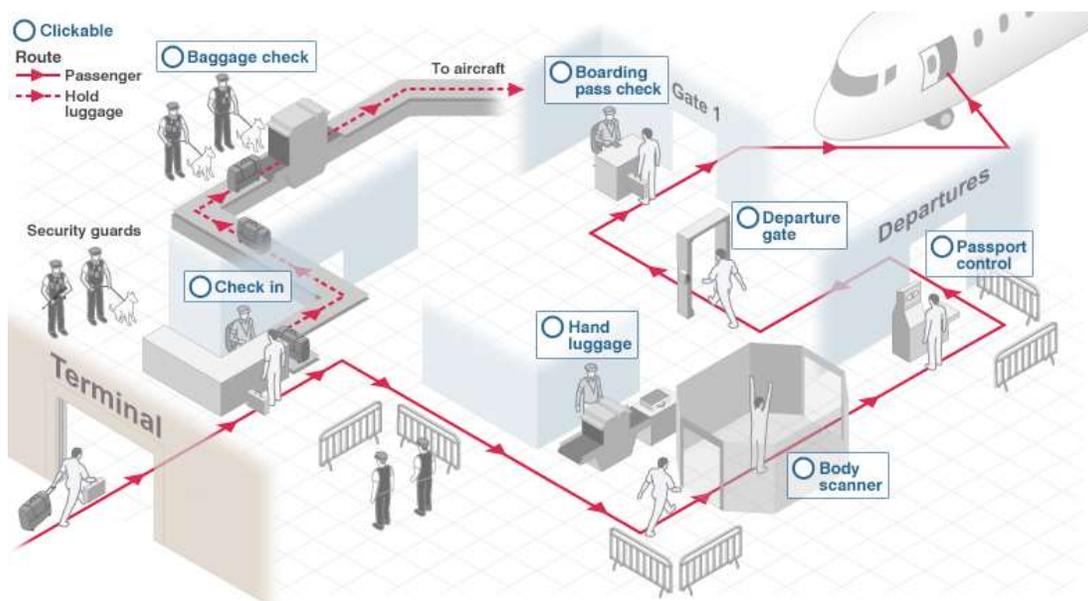
People screening covers the following sections:

- ❑ People-screening CBRNE-detection systems – including gates, hand-held and portable products
- ❑ People-screening weapon-detection systems – including gates and hand-held systems

The aviation security agencies are also forecast to invest more in developing, evaluating, and deploying new and/or fused screening technologies. Better or combined technologies will improve current screening performance and provide an ability to identify objects that are currently undetectable, so as to decrease the likelihood of an armed hijacking or explosion aboard a passenger airplane and minimize disruption at airports. Aviation security agencies should increase the use of pilot programs and other means to rapidly deploy new technologies into airports.

Multi-modal Third Generation People-screening multi-threat detection systems, including weapon/CBRNE-detection and biometric portals are forecast to be deployed during this report period.

Figure 3 - Airport Terminal Screening Infrastructure



More information can be found at:

**[Global Airport Security: Technologies, Industry & Markets - 2015-2020](#)**