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Evolving risk-based security: A review of current issues and emerging trends impacting security screening in the aviation industry

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ABSTRACT

Passenger security screening has traditionally relied on a one-size fits all approach, with every passenger being subject to walk-through metal detector and x-ray screening of baggage. New technologies have been added to the process to screen for explosives, and some improvements made in terms of efficiency of checkpoints. However, with growing passenger numbers, space and financial constraints, a risk-based approach to screening is becoming an imperative. An asymmetric and dynamic threat environment related to regional and global conflicts represents a continuing challenge for security officials, airports and airlines alike. Opportunities exist for risk-based models; through the identification of high risk passengers and flights, recognition of equivalence of measures for transferring passengers and identification of low-risk or trusted travelers. A genuinely risk-based approach will require flexibility on the part of regulators, airports, airlines and passengers, coupled with trust between States and between agencies within States. Increasing unrest in the world and evolving threats may hinder the implementation of risk-based security, but with the right implementation it may provide an answer to increasing pressures on the security system.

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1. Background

Today's aviation industry faces increasing pressure to "do more with less". Passenger numbers are growing, especially in Africa, China, the Indian Sub-continent and Latin America. Resources are limited and threats to the aviation system are forever changing. In order to better focus resources on high risk passengers, some countries are starting to deploy intelligence driven, risk-based screening measures. This article examines some of the techniques used, the advantages and barriers for each, and asks the question whether a risk-based security approach can really save time and cost while maintaining a sufficient level of security.

A risk-based approach to security is based on the following premises:

- The vast majority of airline passengers present a low risk.
- The more information that is known about passengers, the better the population can be segmented in terms of risk.
- Security can be increased by focusing on unknowns while expediting the known or trusted travelers.

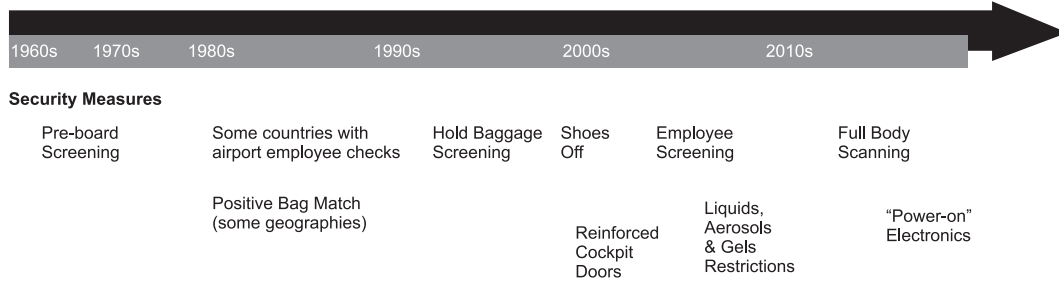
Historically, regulators have added layers of new security measures in reaction to an event or emerging threat. Looking back over the events of the past forty years, we can see the original pre-board screening processes from the 1970s and 80s being added to incrementally as different events occur. When knives became a threat for aircraft hijacking, security screening was introduced to prevent sharp objects within the aircraft cabin. Similarly, new screening measures were introduced in 2006 to

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Examples of Evolving Threats

Hijackings with knives - suitcase bombs - planes as weapons - underwear explosives - liquid and cellphone bombs



counter potential issues with explosives in the form of liquids, aerosols or gels.

Even when new measures are brought in, such as reinforced cockpit doors to mitigate the risk of passengers attacking flight deck crew, there has been little or no relief for other measures which might therefore be considered redundant, in this case the carriage of knives, or other similar prohibited items.

In 2010, the 37th Session of the International Civil Aviation Organization (ICAO) Assembly directed the ICAO Council to instruct the AVSEC Panel to identify and develop a risk assessment methodology for aviation security and to include risk-based assessments with any recommendations for the adoption of new or amended aviation security measures. The ICAO Working Group on Threat and Risk has created such an approach, and applies it to help advise member states on the level of risk posed by theoretical threats.

In 2013, the ICAO, issued a new risk-context statement for aviation security (ICAO, 2013). "The continuing threat of terrorism is most effectively managed by identifying, understanding and addressing the potential risks both to and from civil aviation in general and its specific goods (passenger, baggage, cargo and mail) transported."¹ This demonstrates a strong emphasis on identifying and understanding risk.

Some countries already adopt some elements of risk-based security in their processes, such as the SURE! concept in the Netherlands, and TSA Pre-Check program. The TSA Office of Screening Capabilities has recently announced further investment in risk-based methodologies, including investment in dynamic algorithm functionality to allow TSA to tailor hold baggage screening detection to a passenger's risk level. There is also enthusiasm among some States for the adoption of a Security Management Systems approach – where risk assessment plays a key role in the overall management of security.

The benefits are astounding. Every week in the United States, approximately 9 million passengers are screened. Faced with growth, the TSA advanced in 2011 a risk-based approach to differentiate lower-risk passengers with Pre-Check. As of September 2014, the TSA has Pre-Check at 119 airports, with about half passengers using accelerated screening methods² (US Transportation Security Administration 2014). The TSA is careful to note that Pre-Check passengers are still screened to international standards, and will "incorporate random and unpredictable security measures throughout the airport and no individual is guaranteed expedited screening."

Will this model work and scale internationally? There remain some fundamental questions about the basics of risk management as well as the ability to address a variety of different operational models.

2. Risk assessment

Formal assessment of risk takes into account the impact of the threat, the likelihood of it occurring and the consequences of it occurring. It is not possible to eliminate every potential threat through detection or mitigation, so it needs to be determined which risks are acceptable, which need management and which must be eliminated to the greatest extent possible.

Impact ↘	Low	→			
	High				
Likelihood ↑	Low	Accept and manage	Accept and manage	Manage risk	Manage risk
	High	Accept and monitor	Accept and mitigate	Manage risk	Manage risk
	Low	Accept and monitor	Accept and mitigate	Accept and mitigate	Manage risk
	High	Accept	Accept	Accept and mitigate	Manage and monitor
	Low	Accept	Accept and monitor	Accept and monitor	Manage and monitor

Although sometimes unpalatable to the public, it is normal practice to accept a low level of risk. If this were not the case, no passenger or crew member would be trusted, no equipment deemed safe, no amount of screening sufficient. Applied in a broader context, life would be impossible. The probable risks therefore need to be addressed, rather than all possible risks. This allows resources to be focused where they are most valuable, and business to continue in the most efficient way possible.

Even though there are many layers of aviation security and close

¹ IATA, Global Risk Context Statement, 2013.
² Based on statement that "Each week, more than five million passengers experience TSA Pre✓™ nationwide" from US Transportation Security Administration press release, "TSA Pre✓™ debuts at Flint's Bishop International Airport", September 4, 2014.

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