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RISK-BASED SCREENING: FROM INTRIGUING HYPOTHESIS TO HOT TOPIC

The theory has been around for years and focused on passenger screening, but risk-based screening (RBS) is actually now becoming a reality in several aviation security sectors. Ever increasing air passenger traffic plus advances in biometrics, artificial intelligence and integrated screening technology are driving some very exciting developments - RBS is now firmly on the fast track.

FLEXIBLE AND TARGETED

Unlike typical 'one size fits all' screening, RBS varies the process based on risk assessments made by combining a unique identifier (for example, biometrics or shipping ID) with information gleaned from criteria such as destination or region, ticketing or routing data, behaviour and contents, 'watch lists' or membership of traveller programmes. Customs organisations, for example, may also be interested in the point of departure.

It could potentially reduce the level of screening (and speed up the process) in some cases and add additional measures as required - specific people, bags, shipments, flights or destinations/origins could be targeted for more stringent screening. This more streamlined approach elevates security and operational efficiency, delivering significant benefits to airlines, airports, air cargo handlers, regulators and control authorities. It requires a system which can adapt in real-time to the required level of screening.

TSA Pre✓®; the Department of Homeland Security's TASPD system for air cargo; and IATA's Smart Security initiative with the ACI have all demonstrated some early applications of risk-based screening. More recently, it was announced that the EU-funded iBorderCtrl project* will test a combination of risk-based assessment, biometrics and lie detection to improve accuracy and efficiency of checks at EU external borders.

In France the Vision Sûreté programme involves risk assessment; and the UK Aviation Security Strategy includes a focus on a data-driven approach to identifying and targeting higher risk people and goods. Also in the UK, the Future Aviation Security Solutions (FASS) programme is helping to trial and test new technologies and solutions. Internationally, risk management is also central to the ICAO's approach to security.

Going forward, how could RBS be developed specifically for aviation?

MULTIPLE APPLICATIONS

RBS is particularly relevant for aviation as captured information can be used multiple times across the network to benefit stakeholders at departure, transit and arrival airports. And it is not just about passenger screening, RBS can also be applied to hold baggage and air cargo security.

1. At the checkpoint

Security operators would spend more time with passengers they know least about or who represent the highest risk – and therefore provide the best experience for those they know most about and who are low risk. With RBS, the system will adapt and respond to dynamic threats and change the level of screening where necessary by individual passenger, flight or destination.

A key requirement is a unique identifier to associate passengers with their baggage which could be created using biometrics. Once the passenger name, record or advance passenger information is amalgamated with data from third party sources, a risk score can be generated.

So in this scenario, each tray is matched to a passenger at the checkpoint divest using a camera and RFID reader. When the passenger is screened and identified, the appropriate workflow is triggered; and similarly, the bag scanner would read the tray ID and change the detection algorithm accordingly. The recent development of smart and adaptable object recognition algorithms offering automatic detection of an ever expanding list of dangerous, prohibited and contraband goods, provides a quick and effective method of ramping up security as and when needed.

Using artificial intelligence and machine learning, airport authorities would have a greater understanding of each passenger and his or her risk level. In turn, this means smoother passenger flow and a better travel experience.

2. In the hold

A typical hold baggage scenario shows how the information can be shared and used several times. It is applicable to international inbound passengers transferring to internal or international outbound flights - for example, passengers arriving from a 'safe' point of departure could enjoy a much faster and more efficient security procedure at the transfer airport.

X-ray images taken at the departure airport would be sent to the transfer and/or destination airport for review by local Customs, Security, Agriculture or other controlling authorities. The appropriate algorithms (including object recognition) would be used on each bag to filter and identify those of

concern. This would support decisions on which bags warrant additional scrutiny on arrival and where to focus resources. Combining data from both hold baggage and passenger checkpoint analysis would deliver even more insights.

The many operational benefits include better flight connection times, fewer delays and less disruption to the passenger journey. Easing the pressure on inbound screening resources, reduces costs and streamlines the process.

3. For air cargo

Sharing outbound information to facilitate a more effective and efficient inbound customs clearance process also offers significant benefits in air cargo operations. Object recognition algorithms could again be used here to alert local authorities to contraband as well as uncovering dangerous goods such as lithium batteries before departure.

This sector already executes a degree of differentiation as additional measures are required on some flights carrying consolidated shipments. RBS would apply appropriate and proportionate measures to screen all consignments based on the linked risk level.

The shipping manifest acts as a unique identifier and the risk assessment criteria include destination, routing information, contents and source (e.g. secure countries or approved forwarding companies). Assessment could start at an external cargo site or directly in the forwarding hub and involve information on the shipper and the goods, plus dimension and weight of the shipment.

This data would be transmitted for use before the screening process and updated when necessary at touch points during the journey. The system would recognise each shipper/shipment and trigger an appropriate level of screening based on the risk assessment.

The goal here is to create an effective, adaptable and seamless process which does not impact the flow of goods. With no passengers involved and less privacy issues, there are considerable opportunities for RBS in air cargo

It seems sure aviation will continue to benefit from increasingly sophisticated RBS developments and applications. A few technical, social and regulatory matters - cybersecurity; data protection; cultural differences; and certification – are all being actively addressed and RBS initiatives continue to gain momentum.

*Source: https://www.innovationtrends.eu/news/ai-controlled-checks-boost-security-and-speed-traffic-eu-borders

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