



## **ECAC STRATEGY PAPER ON BEHAVIOUR DETECTION<sup>1</sup>**

### **Introduction**

1. In 2011, the European Civil Aviation Conference (ECAC) established the Behaviour Detection Study Group (BDSG) to facilitate the exchange of information, validation results, and best practices among States with active anomalous behaviour detection (BD) programmes in civil aviation environments. While applied methodologies, practices, and processes vary within each State's programme, all share similar characteristics as an optimised, flexible tool that has been integrated into its current aviation security regime.

2. As the largest forum for States with active operations, the BDSG is uniquely positioned to optimise behaviour detection approaches, and advise policymakers on innovative behaviour detection developments with potential application to the wider aviation security environment. Furthermore, the BDSG serves as a platform for scientific cooperation between experts, as well as an arena for active States to harmonise policies. As a result of this collaboration, the BDSG has successfully produced common materials and tools intended to influence international dialogue on behavioural techniques, and improve existing national capabilities.

3. The ECAC Behaviour Detection Model Programme and relevant Research and Development (R&D) initiatives conducted by BDSG members, have contributed to a more successful implementation of these techniques at airports around the world. The BDSG has produced guidance material on the use of behaviour detection that offers numerous deployment options at a range of domains including landside, airside, and checkpoints. Moreover, behaviour detection can be retooled for different purposes such as enhancing patrolling and surveillance operations, as well as for reducing insider risk vulnerabilities. Furthermore, the BDSG welcomes the recent recognition and endorsement of behaviour detection within aviation security processes as noted by the recent inclusion of a new definition<sup>2</sup> and Recommended Practice of behaviour detection into the International Civil Aviation Organization (ICAO) Annex 17 of the Chicago Convention. The recent terrorist attacks, the current EU regulation<sup>3</sup>/ECAC Doc 30 recommendations for identifying suspicious behaviour and the interest of several States to use behaviour detection within their airport environment, only underlines the need for even more investment in the research and use of behaviour detection by the Group.

4. These achievements have successfully laid a foundation for robust exchange and collaboration. However, given the overall industry shift towards a more risk based approach to screening and taking into account other relevant developments, the BDSG has refocused its strategy in order to maintain its momentum and guide future

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<sup>1</sup> endorsed by the ECAC Security Programme Management Group on 3 November 2016.

<sup>2</sup> ICAO Annex 17 Definition: Behaviour detection: within an aviation security environment, the application of techniques involving the recognition of behavioural characteristics, including but not limited to physiological or gestural signs indicative of anomalous behaviour, to identify persons who may pose a threat to civil aviation.

<sup>3</sup> Regulation EC 300/2008, 1.5 There shall be surveillance, patrols and other physical controls at airports and, where appropriate, in adjacent areas with public access, in order to identify suspicious behaviour of persons, to identify vulnerabilities which could be exploited to carry out an act of unlawful interference and to deter persons from committing such acts.

collaboration. This document outlines the strategic objectives for the BDSG with associated work priorities. It also proposes a framework for strengthening aviation security standards related to behaviour detection. A separate accompanying Implementation Plan will provide additional details on the overall approach and timeframe to achieve the BDSG mission. The Implementation Plan will provide more granularity on individual projects and initiatives and establish a work programme for expected deliverables and outputs (including the necessary connectivity to other fields of expertise within the industry), which will contribute to the delivery of the objectives described in this strategy.

### **Current application of Behaviour Detection in aviation security**

5. Behaviour detection draws on scientific research, which indicates that individuals who pose a threat to aviation security may exhibit behavioural indicators (e.g., verbal, non-verbal, physiological) that stem from a fear of discovery. Behaviour detection personnel are trained to detect such anomalous behaviour, which can occur when individuals are attempting to defeat the security screening process. Attempting to conceal true intentions/emotions in high-stake situations typically results in behaviour that does not fit the norm for that environment. These behaviours may be subtle, but trained personnel have the ability to detect these individuals with mal intent and thwart potential attacks. These techniques can be used as part of an overall approach to aviation security to help mitigate threats before an attack as well as provide a deterrent effect.

6. Behaviour detection offers an additional approach to security screening in screening checkpoints' operations. Instead of detecting an object or prohibited item, behaviour detection focuses on the person and identifying anomalous behaviour from individuals with malicious intent. Whilst further research is needed to fully understand the range of capabilities, this approach may offer a significant advantage over traditional detection techniques as it is threat-agnostic; meaning it does not matter what the current threat is since this is focused on the behaviour of the individual, not on the detection of certain types of explosives, for example. While threats continue to evolve, behaviour detection remains equally effective at identifying malicious intent.

7. A number of States have developed their own behaviour detection programmes with positive outcomes. However, there has been limited additional uptake so far and in the existing (international) regulatory frameworks, behaviour detection is an optional measure that can only be deployed as a complementary approach to the current screening<sup>4</sup> process. As such, behaviour detection deployment requires additional funding, which requires – among others – aviation security operators to provide justification for the proposed investment when behaviour detection is not a mandatory requirement. This kind of justification might be found in the other, non-counter-terrorism benefits, for which behaviour detection has a proven track record. These benefits have provided the justification for implementing a behaviour detection capability, such as immigration, people trafficking, money laundering, counter narcotics, or general crime.

8. As mentioned, behaviour detection is being adopted as a Recommended Practice (RP) in ICAO Annex 17 of the Chicago Convention, which is acknowledged as a very promising first step. In order for behaviour detection to be fully integrated in the legal framework for aviation security at an international level (ICAO and/or EC) clear, common requirements, testing methodologies and supporting evidence base need to be established first. An important aspect to understand is how to measure behaviour

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<sup>4</sup> Regulation EC 300/2008 & ECAC/CEAC Doc No. 30, 'screening' means the application of technical or other means which are intended to identify and/or detect prohibited articles.

detection in practice. In this sense, research cooperation on behaviour detection as currently practiced within the BDSG is of utmost importance.

## **Behaviour Detection Strategy**

9. Over the past few years, airports have implemented enhanced security measures to address an increased number of terrorist attacks and related incidents within the aviation sector. These more enhanced measures have meant that procedures are now more time-consuming, costly, complex, and not always as passenger-friendly as they could be. As a result, aviation security stakeholders recognise limitations to the continuous increase in security measures. It is in the best interests of all stakeholders - governments, airports, air carriers and passengers - that security measures not only counter the threat but are practical at the same time. More than ever, there is a need for a system that is robust enough to mitigate current threats, and flexible enough to adjust to future threat techniques. Ideally, a solution that meets the requirements of all stakeholders should address: security effectiveness, efficiency, and customer orientation.

10. Current airport security techniques are characterised by a 'one size fits all' approach, which means that in principle all passengers undergo identical screening procedures. Within the current model, resources are often allocated towards individuals who do not pose a risk to aviation security; this is the majority of the travelling public. A far more efficient approach is to offer varying levels of screening. If passenger risk can be assessed before the actual security screening, the appropriate level of screening can be applied and resources can be focused on those individuals who pose a higher risk.

11. This requires a paradigm shift in thinking about the manner in which civil aviation security has been traditionally implemented. A good concept for risk-based security that inspires confidence is therefore of the essence. This concept of 'dynamic screening' focuses on the idea that airport security checks are no longer static, but dynamic, so that adjustments can be made to the passengers undergoing the checks. While progressing towards 'dynamic screening' it is important to ensure that visible and static vulnerabilities are not created. Therefore, a risk-based system should also include elements of unpredictability and deterrence.

12. Technological developments allow for a specific implementation of risk-based security and these developments have recently been operationally deployed. The shift towards a more risk-based approach might also form a basis for a renewal in thinking about the role behaviour detection could and can play and how it could be integrated into security processes.

13. The BDSG agrees that behaviour detection has the potential to contribute to a more effective and efficient security process. This includes the expansion and enhancement of the current application of behaviour detection:

- By integrating it as an element of – among others – measures against insider threats, landside security, patrolling/surveillance and/or concepts of unpredictability;
- By further exploring behaviour detection as an alternative or an addition to existing aviation screening checkpoint techniques (i.e. primary and secondary screening);
- By using behaviour detection to establish the appropriate level of security screening in a risk-based approach.

14. By exploring various counter-terrorism capabilities and considering non-counter-terrorism capabilities and deployment options, the BDSG expects that this will further incorporate behaviour detection concepts into international policy and regulation and raise awareness amongst the wider aviation community of behaviour detection's added value.

### **Objectives**

15. To establish the framework for international behaviour detection principles, the BDSG has agreed to prioritise initiatives that define and develop common requirements for behaviour detection, and identify criteria for programme implementation. At the same time, the BDSG seeks to consolidate data on operational best practices, indicators of success, and assess the counterterrorism value of the technique. As part of this overarching effort, the BDSG convenes policy makers and researchers from around the world to advance methods of behaviour detection and its scientific basis, develop guidance material, promote appropriate integration in aviation security and find ways of implementing it in an effective and sustainable way.

16. These efforts will enable the BDSG to validate, refine and enhance behaviour detection techniques, facilitating wider adoption for aviation security purposes. Targeted BDSG support for widespread, optimal application of behavioural techniques within aviation security environments may effectively mitigate emerging risks. To achieve this, the BDSG has established four primary goals, each with a number of contributory objectives.

*1. To facilitate the further incorporation and application of behaviour detection as a security technique within (inter) national policies and regulations*

#### **Goals:**

- Develop and validate the use of behaviour detection for differentiated risk-based screening;
- Quantify and qualify value added and effectiveness for both counter-terrorism and other potential applications that behaviour detection offers for aviation screening checkpoint (i.e. primary and secondary screening);
- Develop and establish common principles and requirements to underpin behaviour detection methodologies that define and set international standards; and
- Encourage the use of behaviour detection for different applications, in order to contribute optimal inputs towards new behaviour detection-policies and regulation.

*2. To optimise and improve behaviour detection through advancement of best practices and cutting-edge research*

#### **Goals:**

- To better understand the full range of behaviour detection capabilities, and, where feasible, integrate these solutions within existing security operations;
- To understand and/or measure the effectiveness as well as the deterrence aspect of behaviour detection applications; and
- To promote ongoing improvements to behaviour detection techniques through the development, deployment, and proficient application of programme operations.

*3. To stimulate the use of behaviour detection programmes among civil aviation stakeholders worldwide*

**Goals:**

- To promote the adoption/use of behaviour detection capabilities;
- To support successful implementation of behaviour detection processes through a range of mechanisms including mentoring activities; and
- To facilitate cooperation with other stakeholders.

*4. To align behaviour detection programmes within the ECAC Member States, partner States, and beyond*

**Goals:**

- To harmonise implementation approaches within different countries;
- To develop standardised behaviour detection guidelines; and
- To develop best practices.

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