

# SECURITY PROCESSES AND TECHNOLOGICAL INNOVATIONS

## Session 4



# Welcoming Remarks

**Ms. Angela Gittens**

Director General, Airports Council  
International (ACI) World



#AVSEC2017

# Security Processes And Technological Innovations

**Dr. Harry Martz**

Director, Center for Non-destructive  
Characterization Institute, Lawrence  
Livermore National Laboratory

# Case Study 4.1

## Innovation at the Security Checkpoint

### Moderator:

**Mr. Jeffrey Barrow**, Manager,  
Smart Security, ACI World

### Presenters:

- **Mr. Sebastien Colmant**, Development Manager, Smart Security, IATA
- **An Airport's Perspective, France - Mr. Erick Bouraï**, Head, Aviation Security Policy, Groupe ADP, Paris, France
- **Mr. James McDonald**, Head, Threat, Risk & Innovation Policy, DfT, United Kingdom
- **Mr. José Bonilla**, Director, Innovation Task Force, Office of Requirements and Capabilities Analysis (ORCA), TSA, United States





# Efficiency Measurement at Passenger Checkpoints

**ICAO AVSEC 2017**

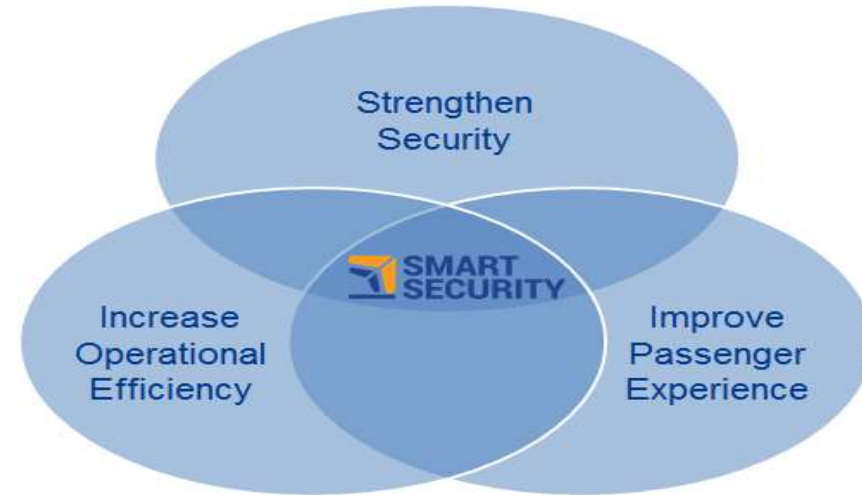


Montreal, 13 Sept.17

# Smart Security

## A joint IATA – ACI program

- ✈ **Smart Security** envisions a future where passengers proceed through security checkpoints with minimal inconvenience, where security resources are allocated based on risk, and where airport facilities can be optimized, thus contributing towards an improved journey from curb to airside

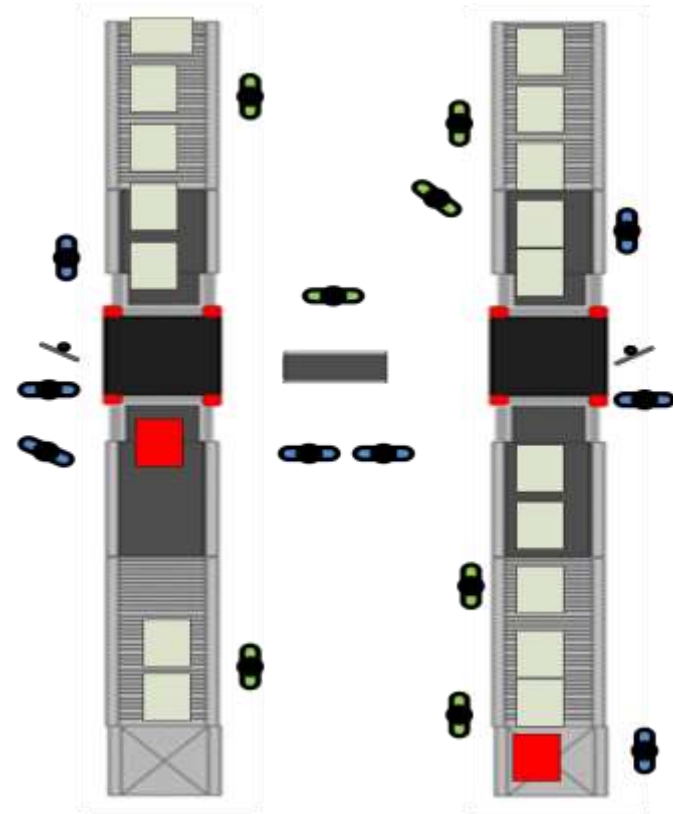


# Legacy checkpoint









## Inefficient by nature

- Bottlenecks
- Suboptimal utilization of screening equipment capacity
- Suboptimal utilization of staff capacity (especially at x-ray)
- Rigid staffing model
- Multiple lanes required to deliver limited capacity



# Current and emerging Trends

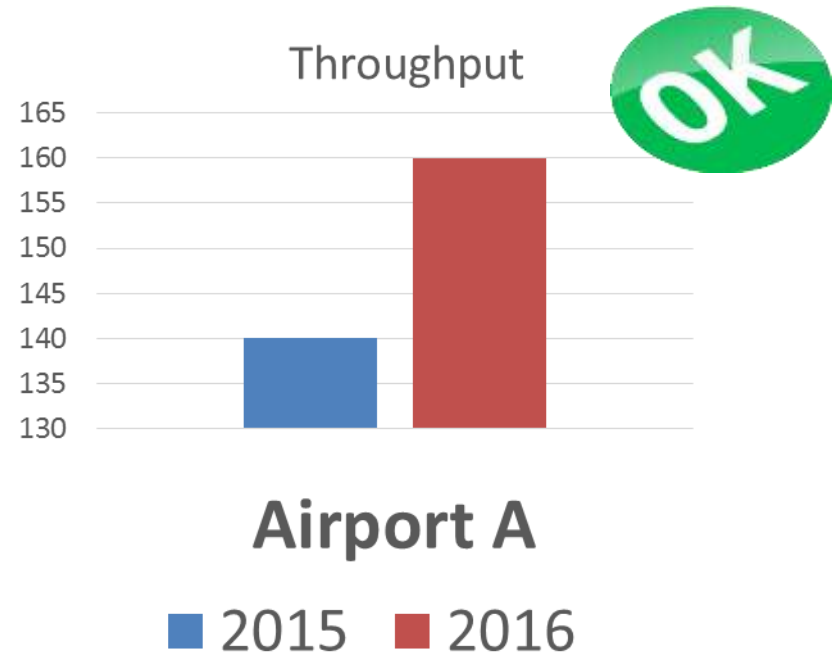
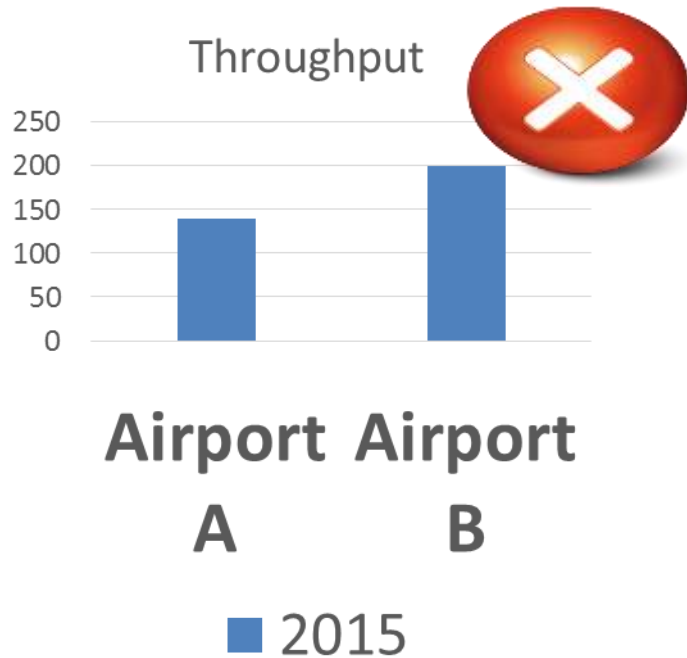
-  Lane automation
-  Centralized Image Processing (remote screening)
-  Advanced cabin baggage screening (EDS – CT)
-  Passenger security scanners
-  Checkpoint Management System
-  Checkpoint Environment





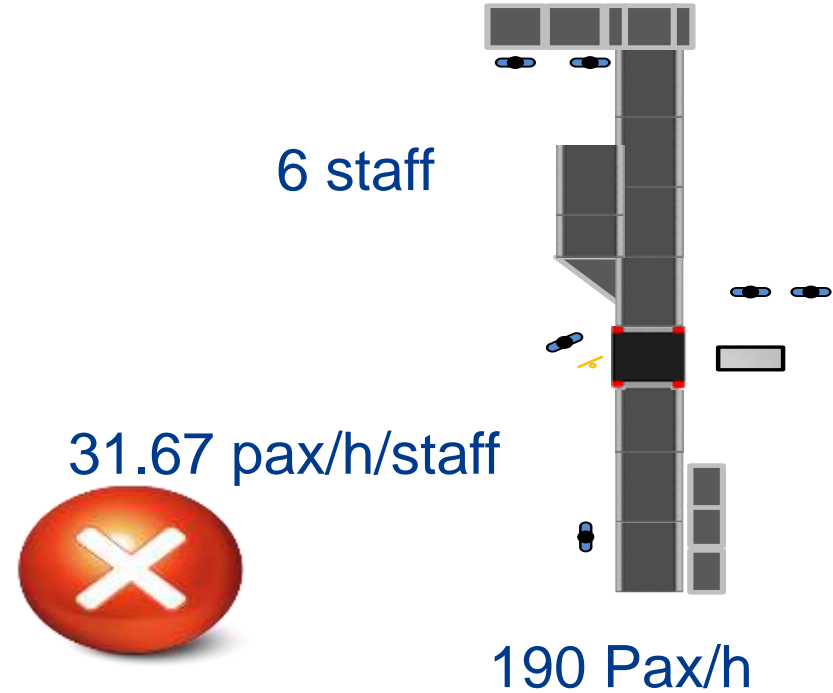
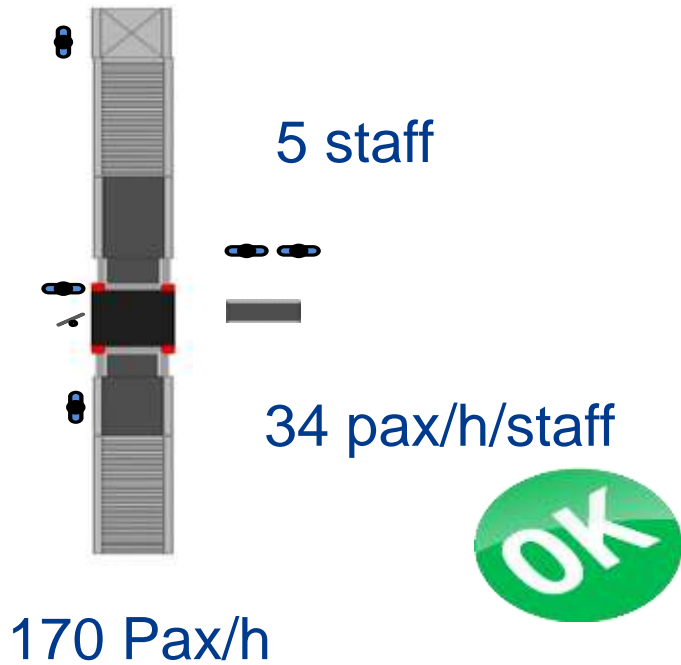
# Checkpoint Efficiency Measurement

## Benchmarking checkpoints?



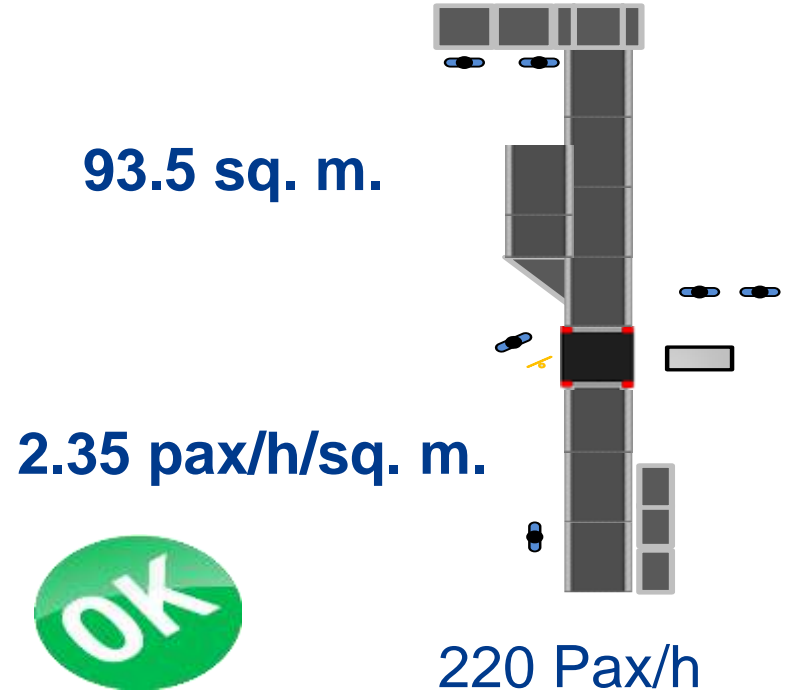
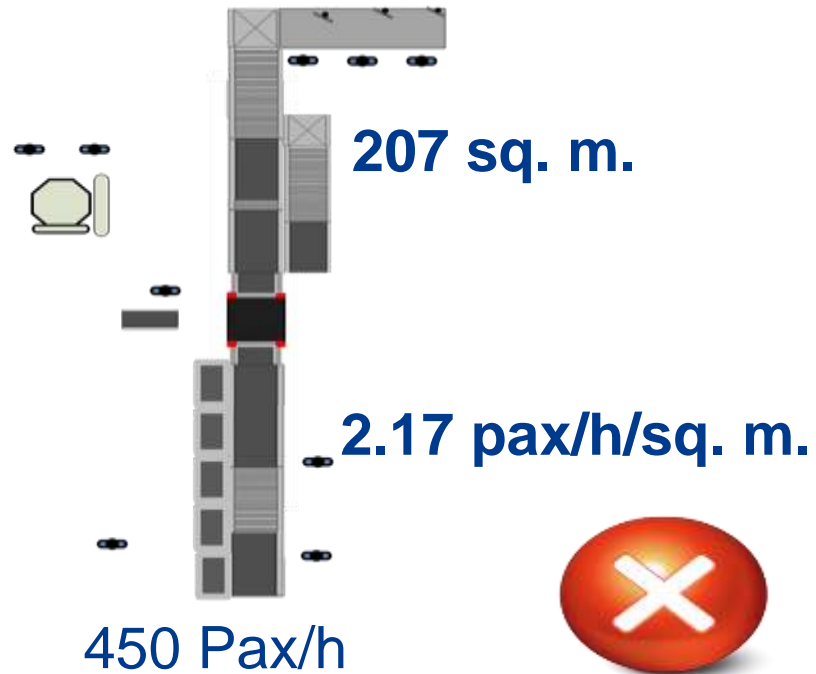
# Checkpoint Efficiency Measurement

Throughput or Staff efficiency ?



# Checkpoint Efficiency Measurement

## Throughput or Surface efficiency ?



# Checkpoint Efficiency Measurement

## Staff efficiency or Surface efficiency ?

	Checkpoint A	Checkpoint B
Number of lanes	2	4
Sustainable lane throughput	400 pax/hour	200 pax/hour
Sustainable throughput per entire checkpoint	800 pax/hour	800 pax/hour
Checkpoint footprint	260 sq. m.	288 sq. m.
Staff per lane	10	4.5
<b>Staff efficiency</b>	<b>40 pax/staff/hour</b>	<b>44.44 pax/staff/hour</b>
<b>Surface efficiency</b>	<b>3.08 pax/sq. m./hour</b>	<b>2.77 pax/sq. m./hour</b>

**Set your objectives!**





[www.iata.org/smart-security](http://www.iata.org/smart-security)  
[smartsecurity@iata.org](mailto:smartsecurity@iata.org)



[www.aci.aero/smart-security](http://www.aci.aero/smart-security)  
[smartsecurity@aci.aero](mailto:smartsecurity@aci.aero)



# AVIATION SECURITY THE WAY FORWARD

by Erick BOURAÏ, Head of AVSEC International affairs



TRANSPORTATION  
SECURITY  
ADMINISTRATION

**SECURITY SCREENING**  
**NOTICE**

All individuals are subject to  
screening beyond this point.



# RECENT HISTORY



1977 Mogadishu	1989 Lockerbie	2001 9/11	2006 Liquid plot	2009 Detroit	2015 Inspire	2016- 2017
<ul style="list-style-type: none"> <li>- Passenger Screening</li> <li>- Cabin Baggage Screening</li> </ul>	<ul style="list-style-type: none"> <li>- Check of Hold Baggage</li> <li>- Baggage Reconciliation</li> <li>- Passenger Screening</li> <li>- Cabin Baggage Screening</li> </ul>	<ul style="list-style-type: none"> <li>- Aircraft and vehicle checks</li> <li>- (APIS, No Fly)</li> <li>- Cockpit Doors reinforced</li> <li>- Continuous baggage surveillance</li> <li>- 100% Staff Screening</li> <li>- 100% Hold Baggage Screening</li> <li>- 100% Baggage Reconciliation</li> <li>- Passenger Screening</li> <li>- Cabin Baggage Screening</li> </ul>	<ul style="list-style-type: none"> <li>- Ban on liquids</li> <li>- Aircraft and vehicle checks</li> <li>- (APIS, No Fly)</li> <li>- Cockpit Doors reinforced</li> <li>- Continuous baggage surveillance</li> <li>- 100% Staff Screening</li> <li>- 100% Hold Baggage Screening</li> <li>- 100% Baggage Reconciliation</li> <li>- Passenger Screening</li> <li>- Cabin Baggage Screening</li> </ul>	<ul style="list-style-type: none"> <li>- Security Scanners</li> <li>- Second screening US-flights</li> <li>- Ban on liquids</li> <li>- Aircraft and vehicle checks</li> <li>- (APIS, No Fly)</li> <li>- Cockpit Doors reinforced</li> <li>- Continuous Baggage surveillance</li> <li>- 100% Staff Screening</li> <li>- 100% Hold Baggage Screening</li> <li>- 100% Baggage Reconciliation</li> <li>- Passenger Screening</li> <li>- Cabin Baggage Screening</li> </ul>	<ul style="list-style-type: none"> <li>- Explosive Detection (ETD/EDS)</li> <li>- Security Scanners</li> <li>- Second screening US-flights</li> <li>- Ban on liquids</li> <li>- Aircraft and vehicle checks</li> <li>- (APIS, No Fly)</li> <li>- Cockpit Doors reinforced</li> <li>- Continuous Baggage surveillance</li> <li>- 100% Staff Screening</li> <li>- 100% Hold Baggage Screening</li> <li>- 100% Baggage Reconciliation</li> <li>- Passenger Screening</li> <li>- Cabin Baggage Screening</li> </ul>	<ul style="list-style-type: none"> <li>- Landside security measures</li> <li>- PED ban</li> <li>- Explosive Detection (ETD/EDS)</li> <li>- Security Scanners</li> <li>- Second screening US-flights</li> <li>- Ban on liquids</li> <li>- Aircraft and vehicle checks</li> <li>- (APIS, No Fly)</li> <li>- Cockpit Doors reinforced</li> <li>- Continuous Baggage surveillance</li> <li>- 100% Staff Screening</li> <li>- 100% Hold Baggage Screening</li> <li>- 100% Baggage Reconciliation</li> <li>- Passenger Screening</li> <li>- Cabin Baggage Screening</li> </ul>



## EXPÉRIMENTATION EN CO



### MESURES DE SÛRETÉ

INTERVENTION D'UNE ÉQUIPE CYNOTECHNI  
POUR RECHERCHE D'EXPLOSIFS SUR PERSON



# Some culture and some straight talk



**Isaiah 2:4\* “...and they shall beat their swords into plowshares, and their spears into pruning hooks: Nation shall not lift up sword against nation, neither shall they learn war anymore.”**

\* American Standard Version



# THANK YOU

« So let us not give up in doing what is fine, for  
in due time we will reap if we do not tire out »

*Saul of Tarsus (born in 5CE, died in 67CE)*

谢谢

شكرا

# MERCI



# Innovation at the Security Checkpoint

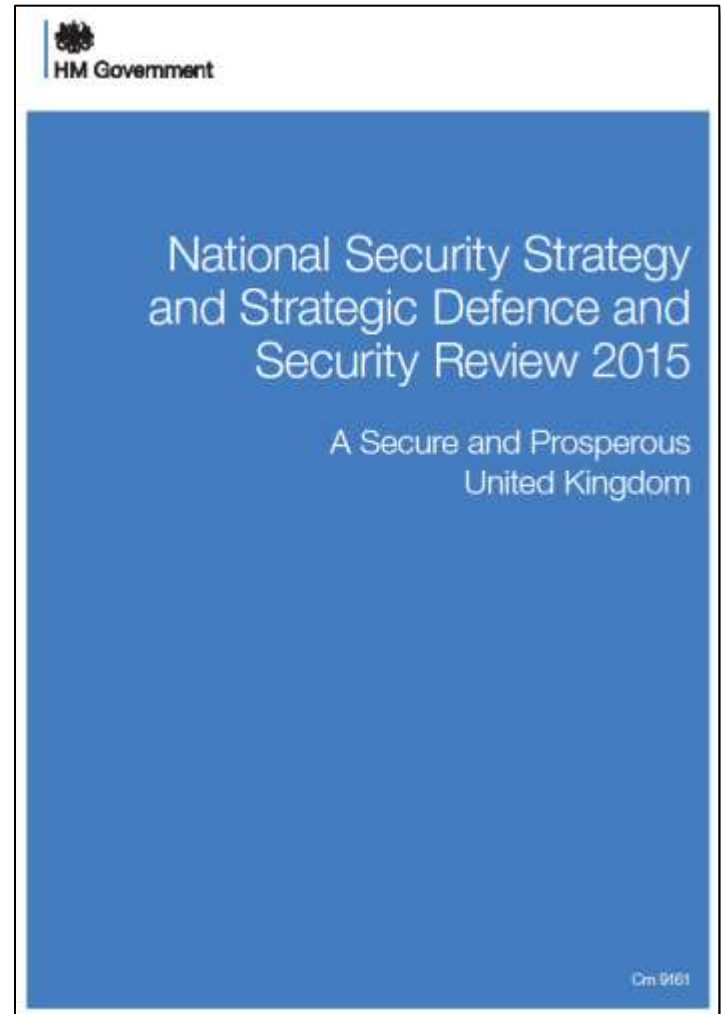
Future Aviation Security Solutions

United Kingdom

## 89 Principal Commitments

*“...We will also increase our investment in counter-terrorism police and **more than double our spending on aviation security** around the world”*

*“...We will **invest in developing new technologies to keep pace with evolving risks**, and to help airports and airlines to screen out threats”*







Department  
for Transport



Home Office

# Future Aviation Security Solutions (FASS)



Airports & Airlines

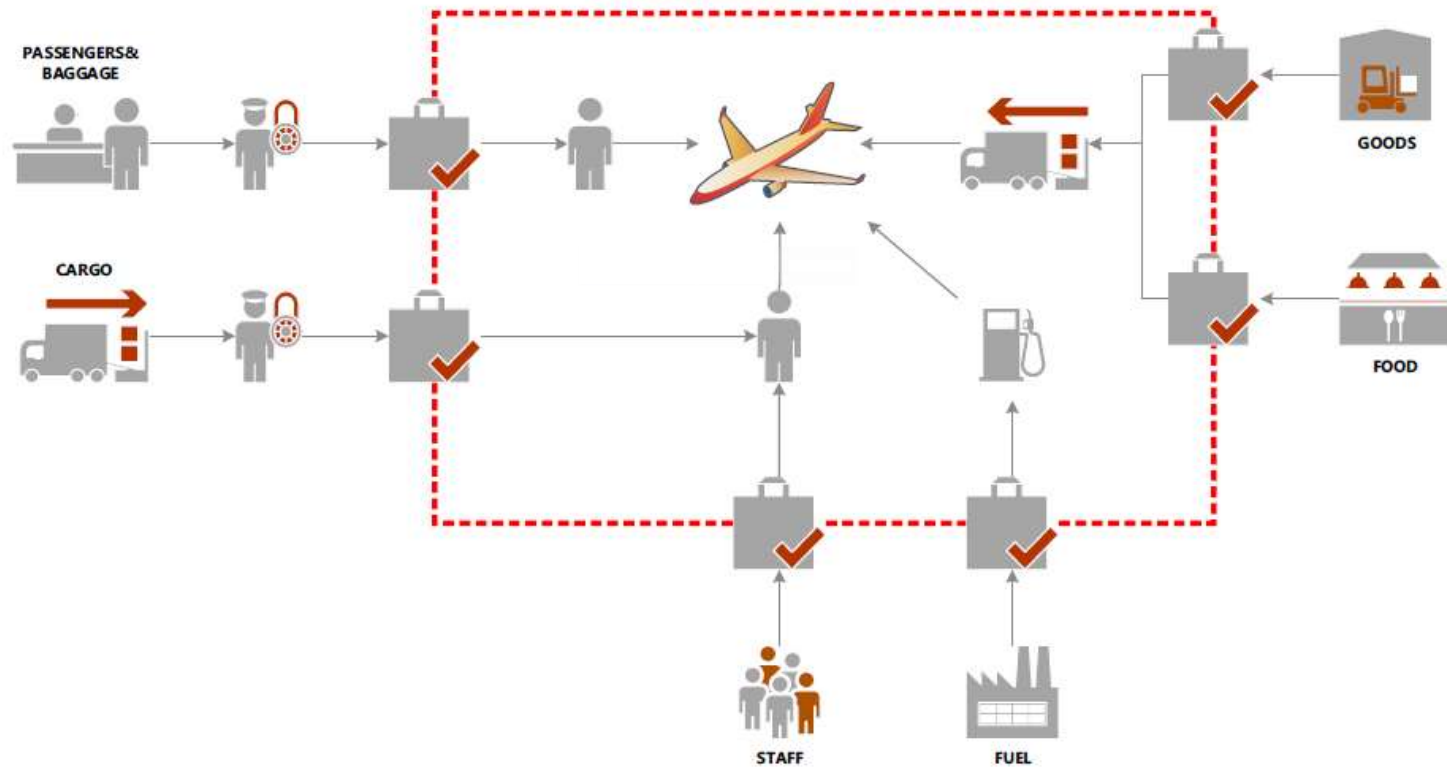


Solution Providers



Other Government Departments  
& International Partners

**STERILE PERIMETER ≠ AIRPORT PERIMETER**



5

People  
Screening

3

Shoe  
Screening

3

Machine  
Learning

2


Imaging  
Modalities


Stand off  
Vapour Detection

Passive  
Vapour Sensing

**Full List :** <https://www.gov.uk/government/publications/accelerator-funded-contracts/accelerator-funded-contracts-1-april-2016-to-31-march-2017#the-future-of-aviation-security>







Departments Worldwide How government works Get involved  
Policies Publications Consultations Statistics Announcements

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Notice

# Defence and Security Accelerator Open Call for Innovation

From:

Defence and Security Accelerator and Defence Science and  
Technology Laboratory

Part of:

Defence and Security Accelerator funding competitions

Published:


26 January 2017

Last updated:

31 July 2017, [see all updates](#)

The DASA Open Call for Innovation wants good ideas to innovate  
across Defence and Security.

Document



[Accelerator Open Call for Innovation](#)  
HTML



## Defence and Security Accelerator

+ Future Research Calls

# Testing, Trialling & Demonstration

Sandbox

Lab  
Testing

Representative  
Testing

Operational  
Trial

TRL 3/4

TRL 5

TRL 6

TRL 7

TRL 8/9

**Thank You**

# Innovation Task Force

Jose Bonilla  
Director

Innovation Task Force  
AVSEC ICAO Global Aviation  
Security Symposium

September 13th, 2017



Transportation  
Security  
Administration



# Innovation Task Force (ITF)

ITF is pursuing innovation and informing emerging people, process, and technology solutions to establish the future state of transportation security in the United States.

## Innovation Task Force



### Mission



### Responsibilities

- **Foster innovation** by integrating key stakeholders to **identify and demonstrate emerging solutions** that increase security effectiveness, improve passenger experience and the flow of commerce, and deliver solutions that secure the freedom of movement throughout the transportation security system.
- **Demonstrate emerging capabilities** across the transportation security ecosystem in partnership with industry, airports, and airlines, and support TSA's broader goal to pursue advanced capabilities through continuous innovation and adaptation
- **Diversify the industrial base and provide industry increased access to operational data**, which allows solution providers to better integrate and quickly develop or mature solutions that will meet TSA's needs

**ITF success depends on the support of multiple stakeholders in the transportation security ecosystem for solution identification and demonstration.**

# Domestic Aviation Security System

Aviation security is enforced through dynamic partnerships among TSA, airport operators, airlines, other government agencies, law enforcement, and the traveling public. Together, these stakeholders form the **domestic aviation security system** based on risk and real-time intelligence.

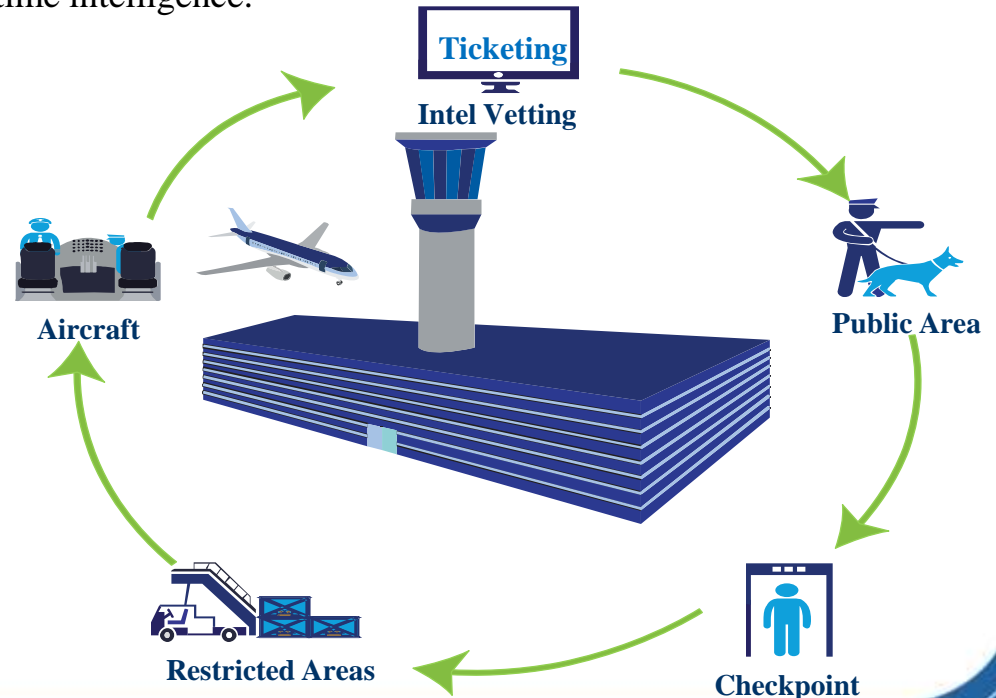
**Ticketing/Vetting:** Vet passenger information against trusted traveler lists to determine passenger risk (trusted, unknown, high)

**Public area:** Monitor activities and patrol parking garages, airport curbside, airline check-in counters, and other areas for suspicious individuals and objects

**Checkpoint:** Screen passengers and property based on risk for prohibited items

**Restricted areas:** Prevent unauthorized entry to hangars, cargo holding facilities, offices, gates, and all passenger waiting areas beyond security checkpoints and access control doors

**Aircraft:** Deploy specially trained flight crews and federal air marshals to provide real-time, in-flight security measures



# Creating an Innovative Environment

ITF creates an environment to focus on redefining the security experience through accelerated solution assessments that inform requirements development and have the potential to improve overall passenger satisfaction.

## ITF solutions **are**...

- ✓ Technological, automated, ergonomic, environmental, or aesthetic improvements
- ✓ Enhancements to detection or passenger satisfaction
- ✓ Inserted for a finite amount of time at existing checkpoints, to conduct technical and operational assessments
- ✓ Future-focused

## ITF solutions **are not**...

- ✗ Operational tests included in the formal testing and evaluation (T&E) process
- ✗ Initially a permanent deployment solution
- ✗ An obligation from TSA to procure solutions in the future
- ✗
  - Surge responses to targeted needs
  - Local optimization efforts



Transportation  
Security  
Administration

# ITF Solution Selection Priorities

ITF conducts a robust solution identification and selection process in order to grow its portfolio of solutions. In May of 2017, ITF launched its second Broad Agency Announcement (BAA) to identify innovative people, process, and technology solutions. Proposed solutions are currently under review for selection for demonstration.

## Innovative Demonstrations for Enterprise Advancement (IDEA)

ITF's second BAA, IDEA, has five submission categories that highlight the types of innovative solutions that ITF is interested in demonstrating in a live airport environment.



Mobile  
Screening



Security  
Design



Queuing and  
Passenger Flow



Training,  
Development, &



Detection  
Capabilities

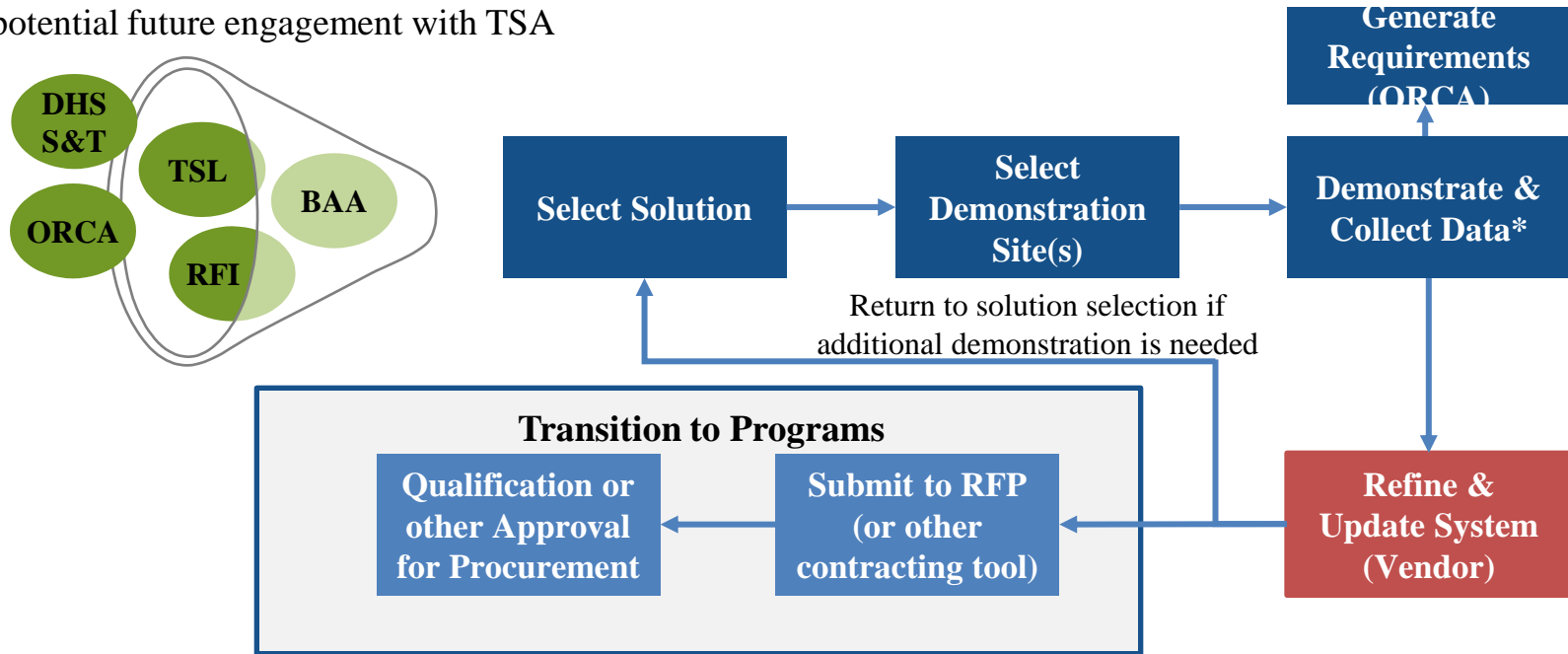


Transportation  
Security  
Administration



# How does ITF demonstrate?

Once a solution is selected, ITF follows a specified solution demonstration lifecycle. This lifecycle allows vendors to demonstrate their solutions in the field, capture operational data, and then refine their solution for potential future engagement with TSA



*\*Note: Solution is mature enough for operational deployment, but not necessarily "perfect"*

# ITF Demonstrations

## Automated Screening Lanes



## Computed Tomography Systems



## Solicitation Cohort 1 Solutions



Note: Representative Sample Only, not all solutions or vendors presented


## Biometric Authentication



## Passenger Communications



# Exchanging with Industry



ITF relies on collaboration across transportation security stakeholders to spur innovation. ITF's Industry Exchange (iX) strategy will allow ITF to customize activities for different industry events based on the expected audience, type of event, and intended outcome

## ITF iX Toolkit

### Inform Stakeholders

In order to successfully demonstrate solutions, ITF must identify partners in airports, airlines, and other federal agencies. By targeting exchange efforts to answer industry's questions, ITF will have more informed stakeholders and greater industry knowledge making future BAAs and solution demonstrations go more smoothly

**Classic Brief**



**ITF Hot Seat**



**ITF and Partners Panel**



**Webinar**



### Pulse the Market

Industry events bring together the most innovative ideas and top solution providers. ITF can use these events to collaborate with industry and spread awareness of future solicitations, identify solutions for demonstration, and enhance industry's understanding of TSA's requirements and needs

**ITF Booth**



**Shark Tank**



**Innovation Tournament**



# Summary and Closing

By collaborating across multiple divisions both within and outside of Office of Requirements and Capabilities Analysis, ITF plans to drive forward strategic goals through executable innovation.

Establish mechanisms to source innovative solutions from industry

**Identify New Solutions and Capabilities**

Build a hub for people who work differently and develop an internal culture of innovation

**Defy the Status Quo for Team Operations**

**Build New Relationships Through Industry Exchange**

Change how TSA engages with stakeholders to open new doors for solutions and ideas

**Develop a New Way of Doing Business**

Question the status quo and enable change

# Case Study 4.2

## Amsterdam Airport Schiphol

**Moderator:**

**Mr. Sebastien Colmant**

Development Manager, Smart  
Security, IATA

**Presenter:**

- **Mr. Bart Mos**, Senior Security Officer, Amsterdam Airport Schiphol

# Activity 4.1

## Innovation in Aviation Security – Practical Applications

### Moderator:

**Mr. Sebastien Colmant**

Development Manager, Smart  
Security, IATA

### Presenters:

- **Mr. Daniel Goh**, Assistant President, NUCTECH Company Limited
- **Mr. Antonino Scribellito**, Projects Director, PostEurop
- **Mr. Neal Owens**, Senior Business Development and Program Representative, Battelle

## Case Study 4.3

### Faces on the Move – Facial Recognition for Traveller Screening

**Mr. Ilan Arnon**

Chief, Technical Officer, Face4 Systems Inc

## Case Study 4.4

### Biometrics for Identity Management in India AADHAAR Enabled Entry and Biometric E-Boarding Process

**Ms. Christine Riveau**

Deputy Vice President, Oberthur Technologies and Safran Identity &  
Security (OT-Morpho)

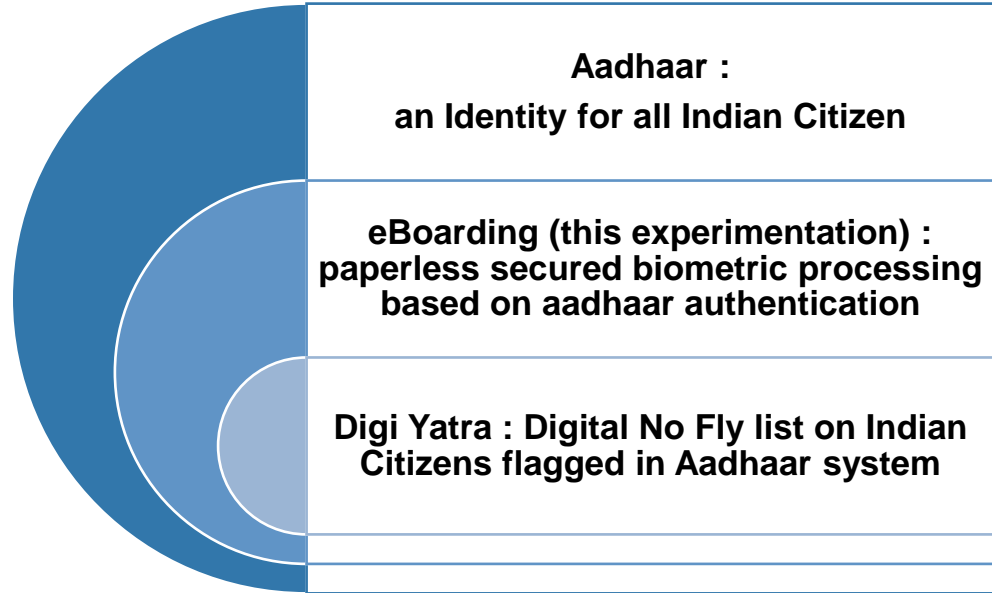




# AADHAAR enabled entry & Biometric E- Boarding Process System

BANGALORE INTERNATIONAL  
AIRPORT

# Bangalore experimentation in the perspective of Aadhaar





# 1

## Voice of the Airport

## BIAL Vision



# Vision



# Prerequisites: Airlines & Airports

- Airline & OTAs : Standard Travel Document integrating Aadhaar Number
- Airline : Allow airport to access PNL via web service
- Airline : Open Standard DCS to integrate with AEBEPS
- Airport : AUA & KUA
- Airport : Front end infrastructure to interact with passenger
- Airport : Back-end infrastructure to process passenger data



# Governance & SOPS

- Under the leadership of MOCA a Governing Body to be created to Govern and Regulate the Standards, Procedures and Policies for all Airports in India
- In the event of Failure of the AEBEPS system, All Agencies including CISF, Airlines and other stakeholders at the Airport shall resort to Manual mode of Operations as per their Standard Operating Procedures.



नागर विमानन मंत्रालय  
Ministry Of Civil  
Aviation



Unique Identification Authority of India  
Government of India



# Benefits to Passengers



- No need to Carry Paper Ticket and ID throughout the Airport.
- Integrated Travel Document and Identity Document
- Seamless Access across all the Check-Points at the Airport
- Reduced Queue waiting times
- Enhanced Experience, Seamless, Hassle-Free & Paperless



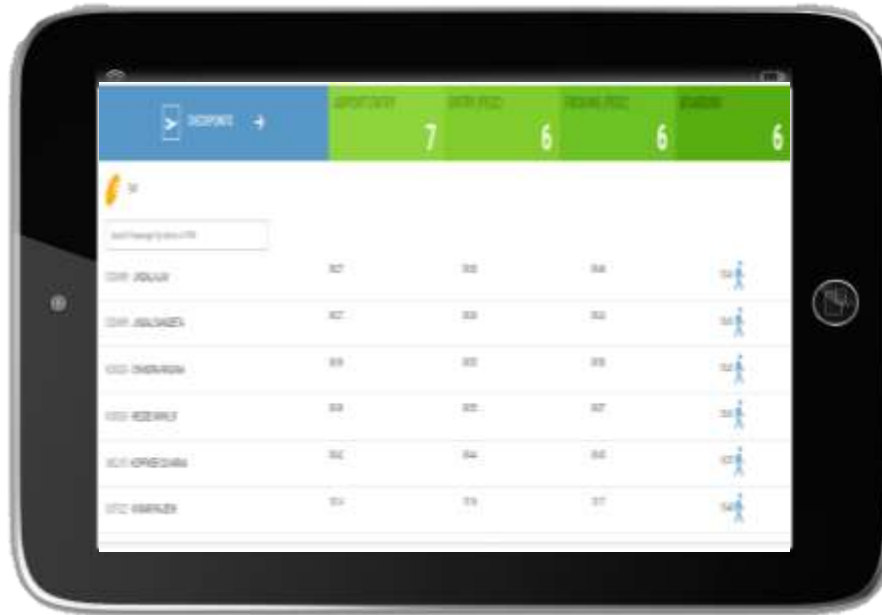
# Benefits: Airlines

## ➤ Airline KPIs

- + Security
- + PAX Experience
- + Punctuality
- + Peace of Mind
- + Savings ₹ ₹ ₹ ₹

## + Actionable Intelligence, Zone wise PAX location per flight

- Airport Entry
- Check-in/ Bag Drop
- PESC zone
- Boarding Gate



# Benefits: Airport and Security Agencies



## ➤ Security agencies KPIs

- + ID validation
- + Process traceability
- + Time stamped logs : Forensic



## ➤ Airport

- + Actionable intelligence of pax traffic
- + Efficiencies : -30% infrastructure cost
- + Innovation attractiveness



## Stakeholders & Role

Stakeholders name	Role
Airlines	Enabler
Online Ticketing Agencies (OTAs)	Enabler
Airport Operators	Execution
MOCA	Policy & Guidelines
BCAS	Policy & Guidelines
CISF	Execution
UIDAI	Support Agency



## **Solution experimentation**



## **BIOMETRICS OFFERS ENDLESS POSSIBILITIES**

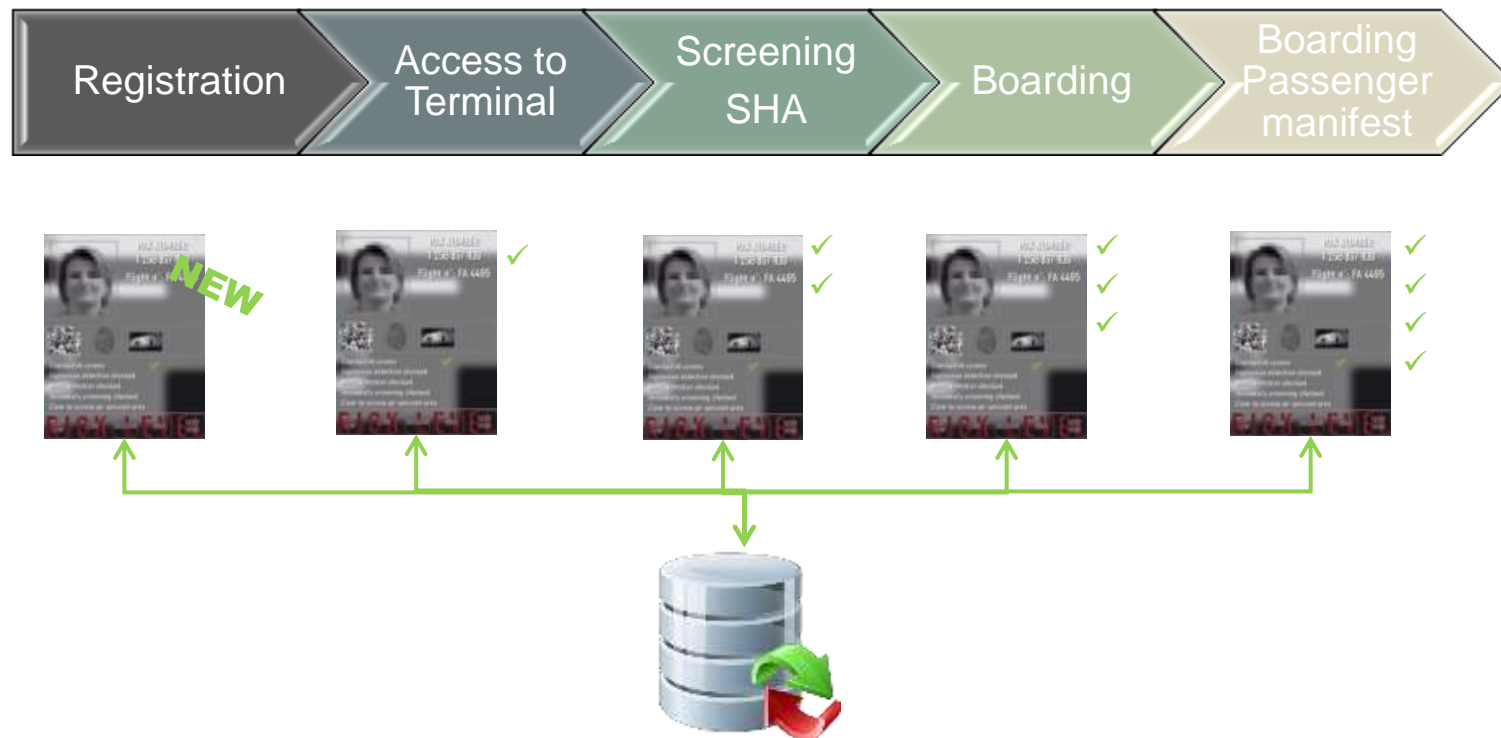
EFFICIENCY  
SECURITY  
FACILITATION

# Why biometrics ?

Biometrics = universal data model to create a unique passenger identifier



# Secured identification and traceability of passenger

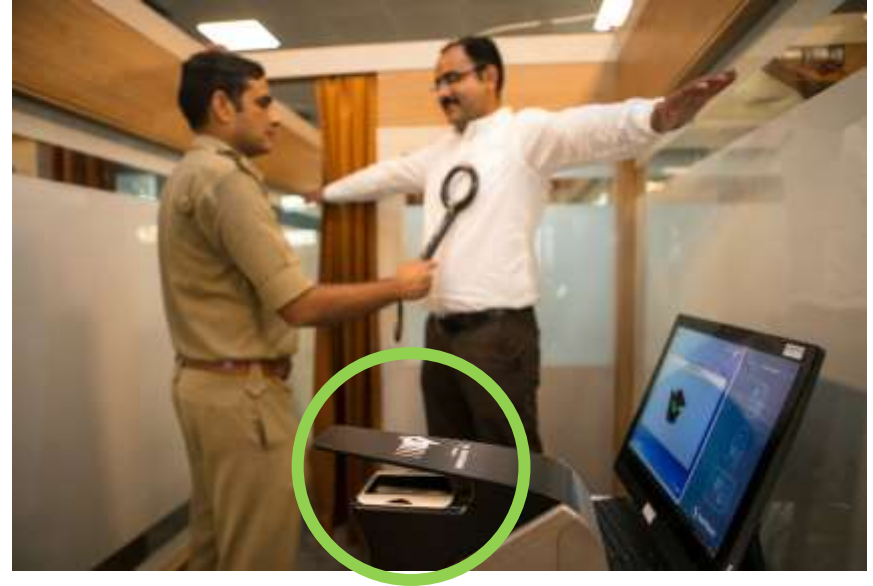


## SIMPLE TO USE : REGISTRATION IN 2 STEPS





# CONTROLS WITHOUT TOKEN + BIOMETRICS REPLACES STAMPING



## BOARDING + NO NEED FOR STAMPING / ID VERIFICATIONS



# BIOMETRIC CHOICE : SPEED, SECURITY AND CONVENIENCE

## Biometrics Key Performance Indicators

	Face	Fingerprint	Iris + Face
Matching	1:1 and 1:few	1:1 and 1:n	1:1 and 1:n
Accuracy @ FAR < 0.5 %	FRR < 5%	FRR < 10 <sup>-5</sup>	FRR < 10 <sup>-6</sup>
Capture	Video 3D face	Hand wave	Video 3D face and IR
Ergonomics	< 2 sec No need for pause	< 1 sec contactless	< 2 sec No need for pause
Experience	No extra light No moving parts Natural move	Ease of use Hygienic No latency	No extra light No moving parts Natural move



**OBERTHUR TECHNOLOGIES © MORPHO**

# Security Processes And Technological Innovations

**Mr. Steve Karoly**

Acting Assistant Administrator, ORCA, TSA,  
United States



# The Future of Aviation Security

Steve Karoly

Acting Assistant Administrator

Office of Requirements and  
Capabilities Analysis



ICAO Symposium Program

*Security Processes and  
Technological Innovations*



Transportation  
Security  
Administration



# TSA Operational Challenges

2,500,000  
Passengers a day.

1,200,000  
Checked bags a day.

6,250,000  
Carry-on items a day.

*With operational challenges at an all time high, we must think outside the box to enhance the future of aviation security for years to come*

# Our Goal and Principles



## *Our Goal:*

The ultimate objective is to reengineer aviation security from top to bottom with a continued focus on increasing security throughout the system.

## *Guiding Principles:*

Comprehensive Detection.

Efficient Operations.

System Resiliency.

Passenger Experience.



# Innovation at TSA

*At TSA we are reimagining the traditional notion of innovation and fostering innovation beyond technology.*



## *PEOPLE*

- Human factors
- Staffing model
- Feedback integration



## *PROCESS*

- Checked baggage
- EAPS
- System Effectiveness



## *TECHNOLOGY*

- Automated Screening Lane
- Biometric Authentication
- Technology
- CT Systems

# Domestic Aviation Security System

Domestic aviation security is enforced through dynamic partnerships with industry and government stakeholders.

Together, we form the **domestic aviation security system** based on risk and real-time intelligence



*TICKETING*

Vet passengers and  
determine risk level



*PUBLIC AREA*

Monitor and ensure  
safety throughout  
airports



*CHECKPOINT*

Screen passengers and  
their property



*RESTRICTED AREA*

Prevent unauthorized  
entry beyond  
checkpoints

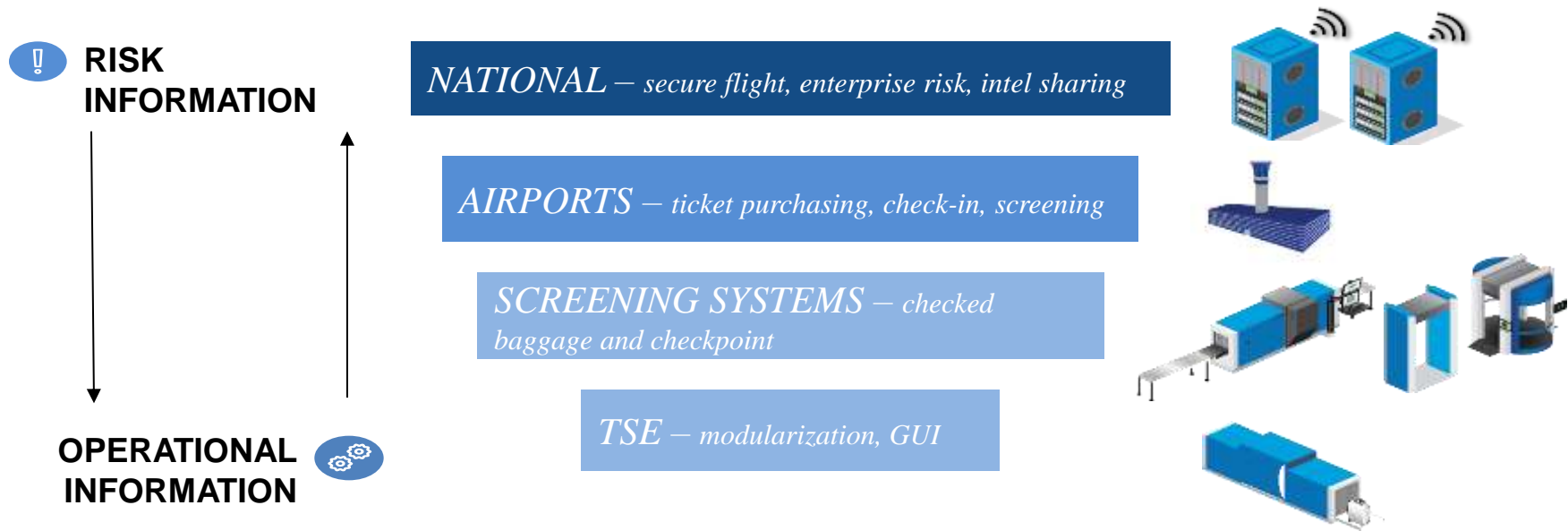


*AIRCRAFT*

Provide real-time,  
in-flight security

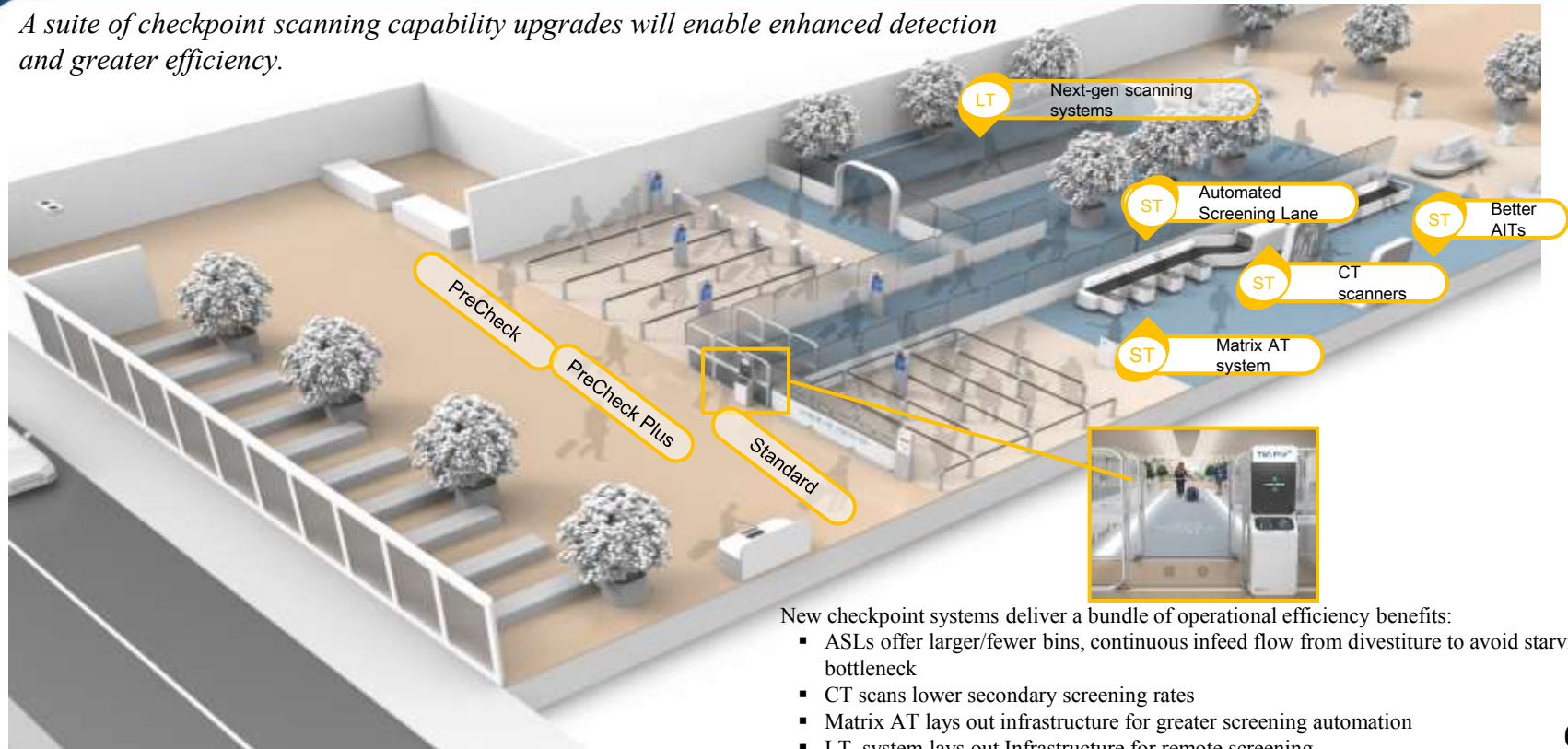
# Layers of the Security Screening System

An aviation security architecture would leverage capabilities across TSA to enable the flow and use of risk and operational data to proactively adapt to emerging threats through a comprehensive view of the security landscape.



# Notional Future State

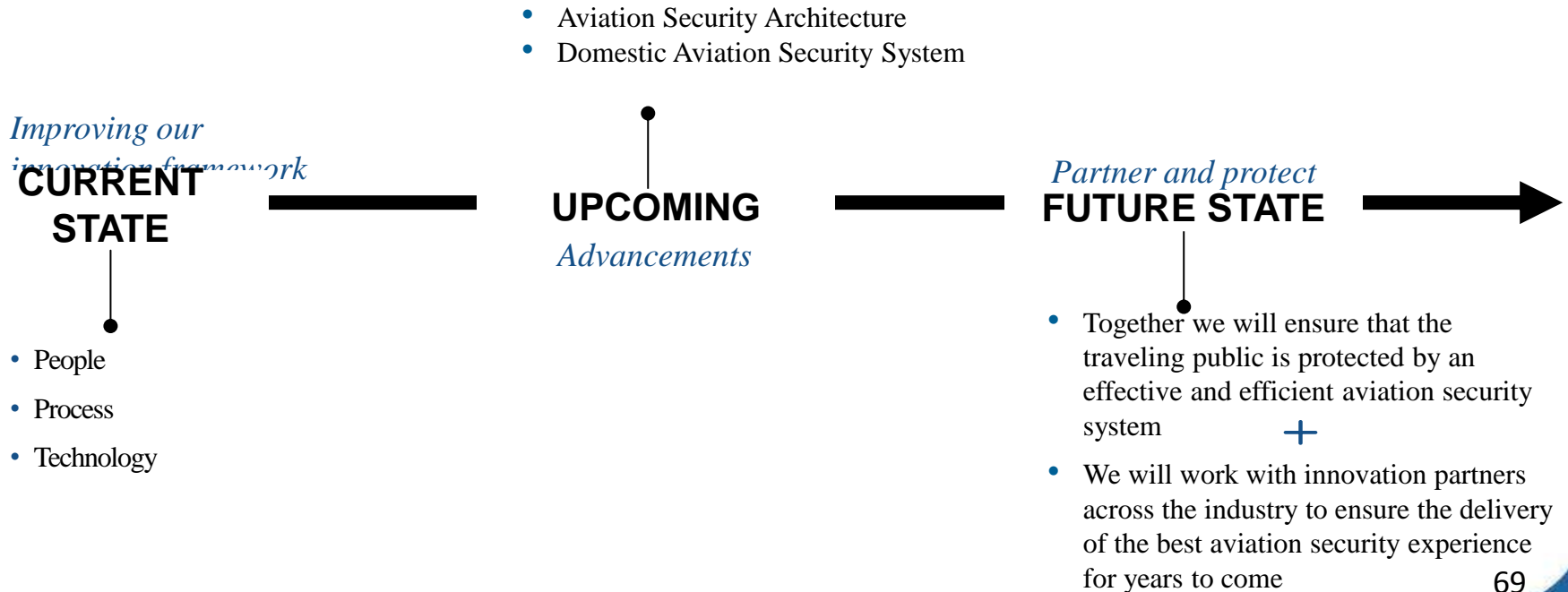
*A suite of checkpoint scanning capability upgrades will enable enhanced detection and greater efficiency.*



New checkpoint systems deliver a bundle of operational efficiency benefits:

- ASLs offer larger/fewer bins, continuous infeed flow from divestiture to avoid starving bottleneck
- CT scans lower secondary screening rates
- Matrix AT lays out infrastructure for greater screening automation
- LT, system lays out Infrastructure for remote screening

# Closing Remarks



# Case Study 4.5

InnerEye: Revolutionizing X-Ray Screening

**Mr. Oren Sapir**

President, ICTS Europe Holdings

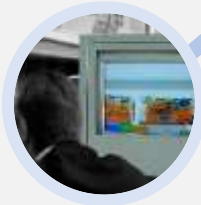


EUROPE

Presents

**INNEREYE**

Technology to enhance the X ray operator  
brains potential



# The Future homeland security specialist





**Is Bionic**



He can scan 6,000 images per hour, streamed  
from the security checkpoints of an entire  
terminal



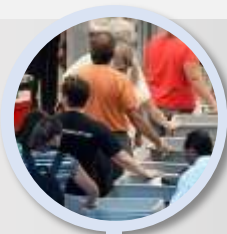
# EVOLUTION OF CHECKPOINTS

## Background

MM  
W



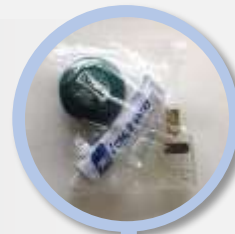
Tray and Lane  
Management



ETD



Liquids  
& Gels



# EVOLUTION OF CHECKPOINTS


## Background

Little to nothing was done  
in the context of image  
interpretation




# EVOLUTION OF CHECKPOINTS


## Background



We thought it's time to  
boost the capabilities of  
the human factor ...



by optimising  
the  
brains potential



# InnerEYE

— The solution —

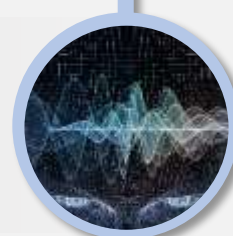
## Target

Increase  
Screeners  
performance  
and  
productivity



## Technology

EEG, brainwaves  
analysis  
and tailor-made  
algorithm application



## Tool

Human brains

# InnerEYE

## What is EEG?

EEG is a portable equipment consisting of a set of electrodes and an amplifier. It is used to passively and non-invasively to record the brains electrical activity.



EEG has been used for nearly 100 years. EEG systems today are widely deployed and are used also in non-medical and non-research applications



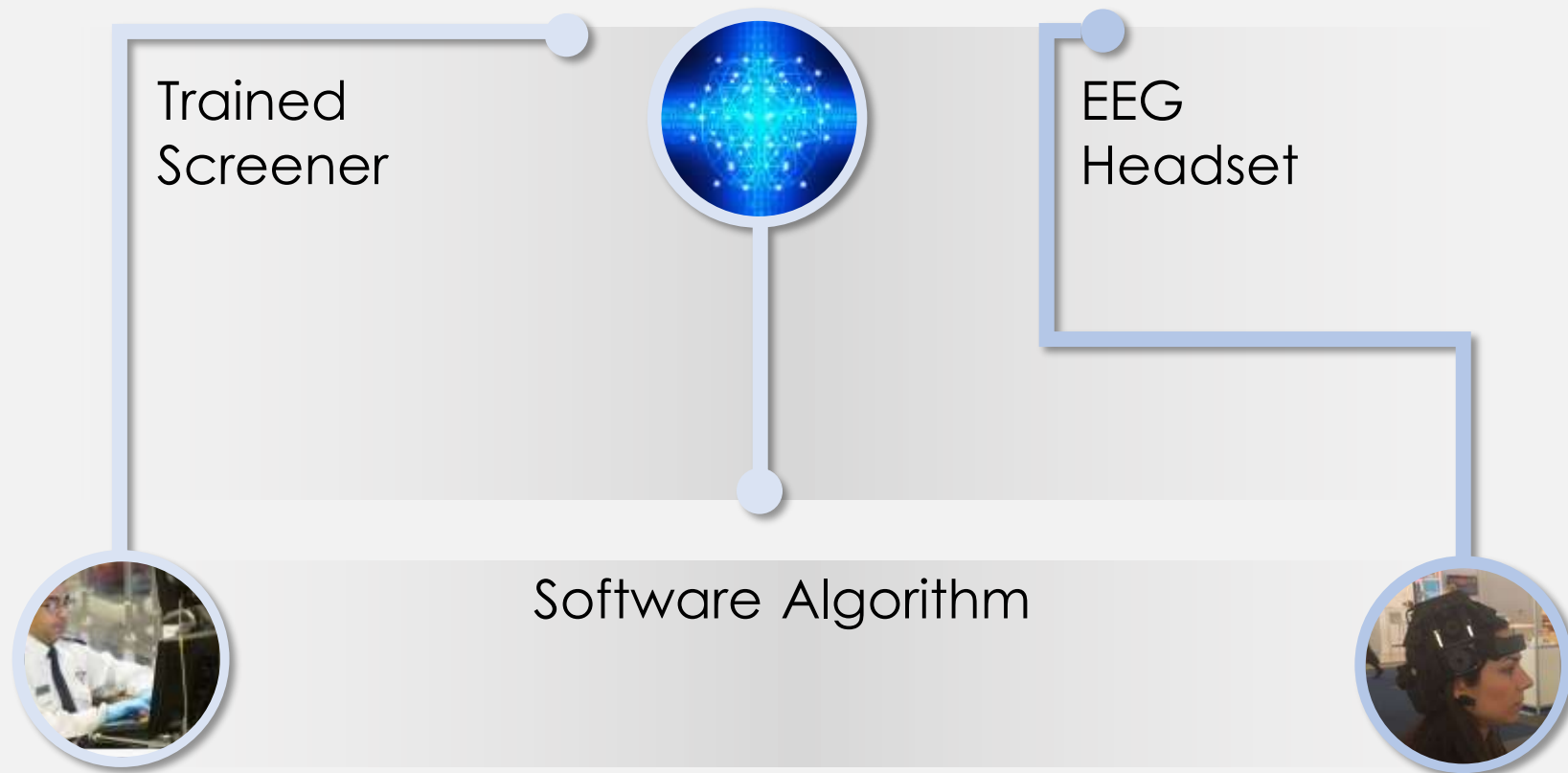
EEG signal reflects the neural activity, such as state of the person or the brain response to stimuli (for example: visual images)





# InnerEYE

## The Technology

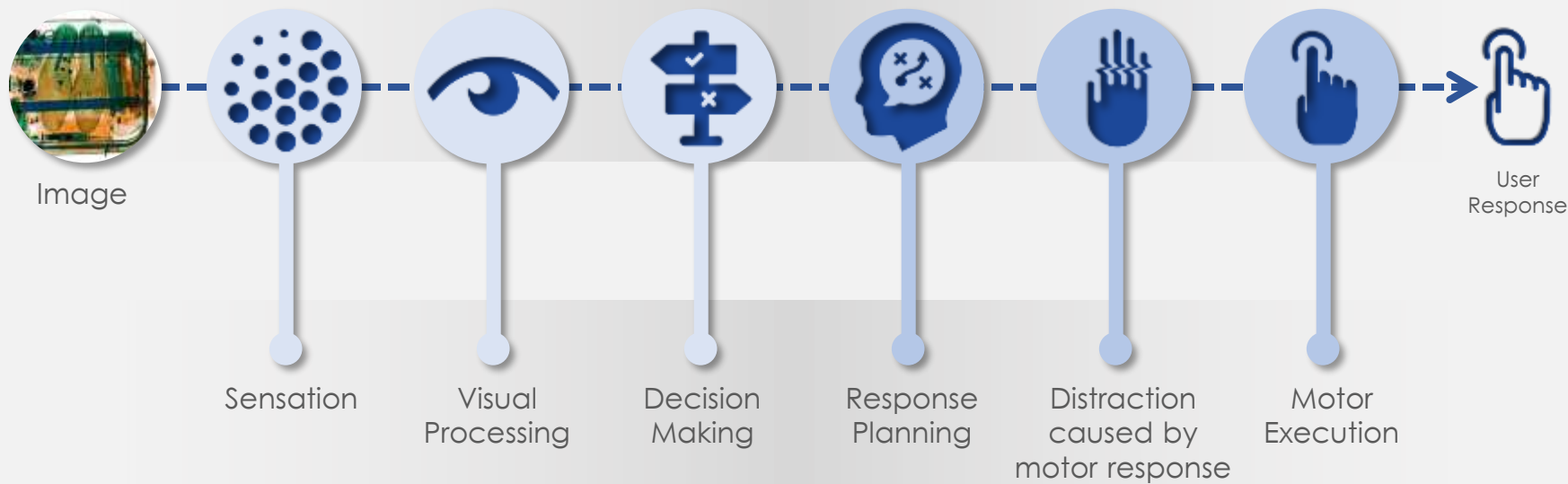




# InnerEYE

## The concept

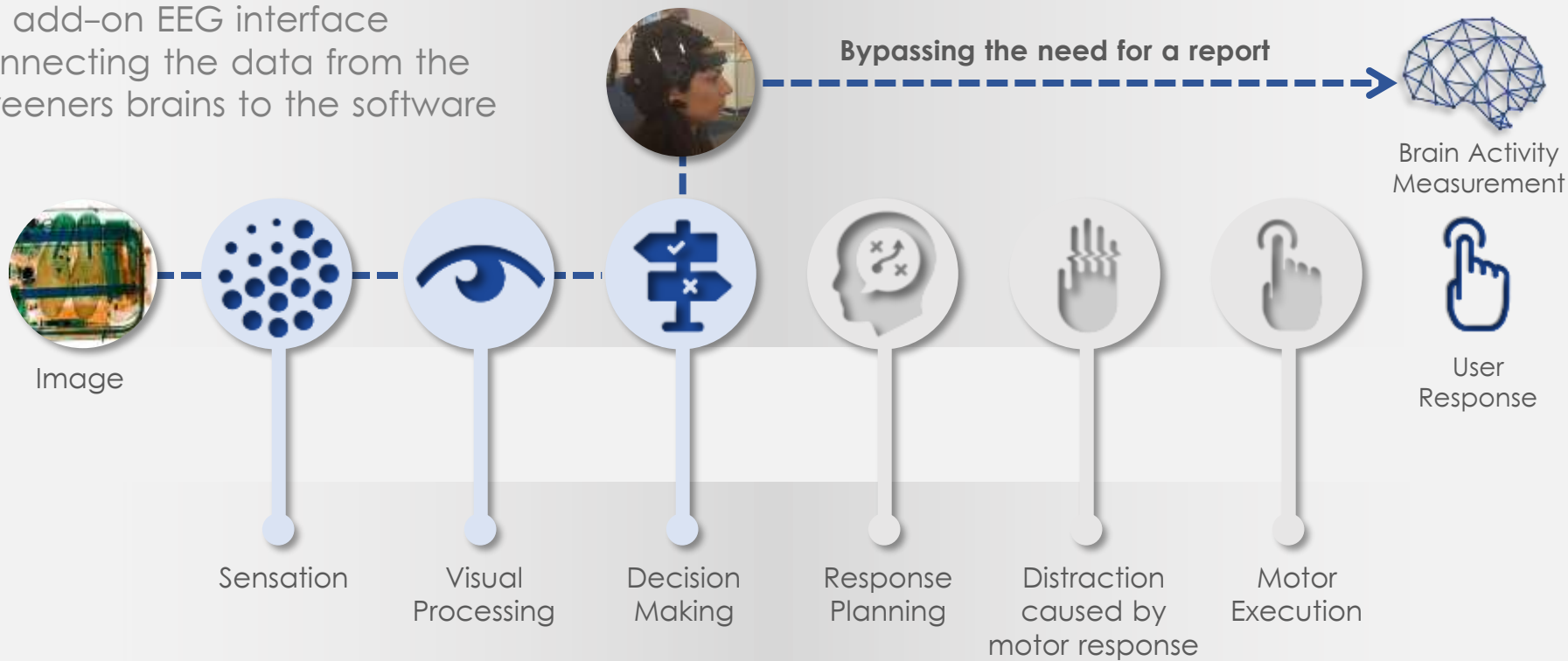
Regular brain process:



# InnerEYE

## The concept

An add-on EEG interface connecting the data from the screeners brains to the software



# TRIALS

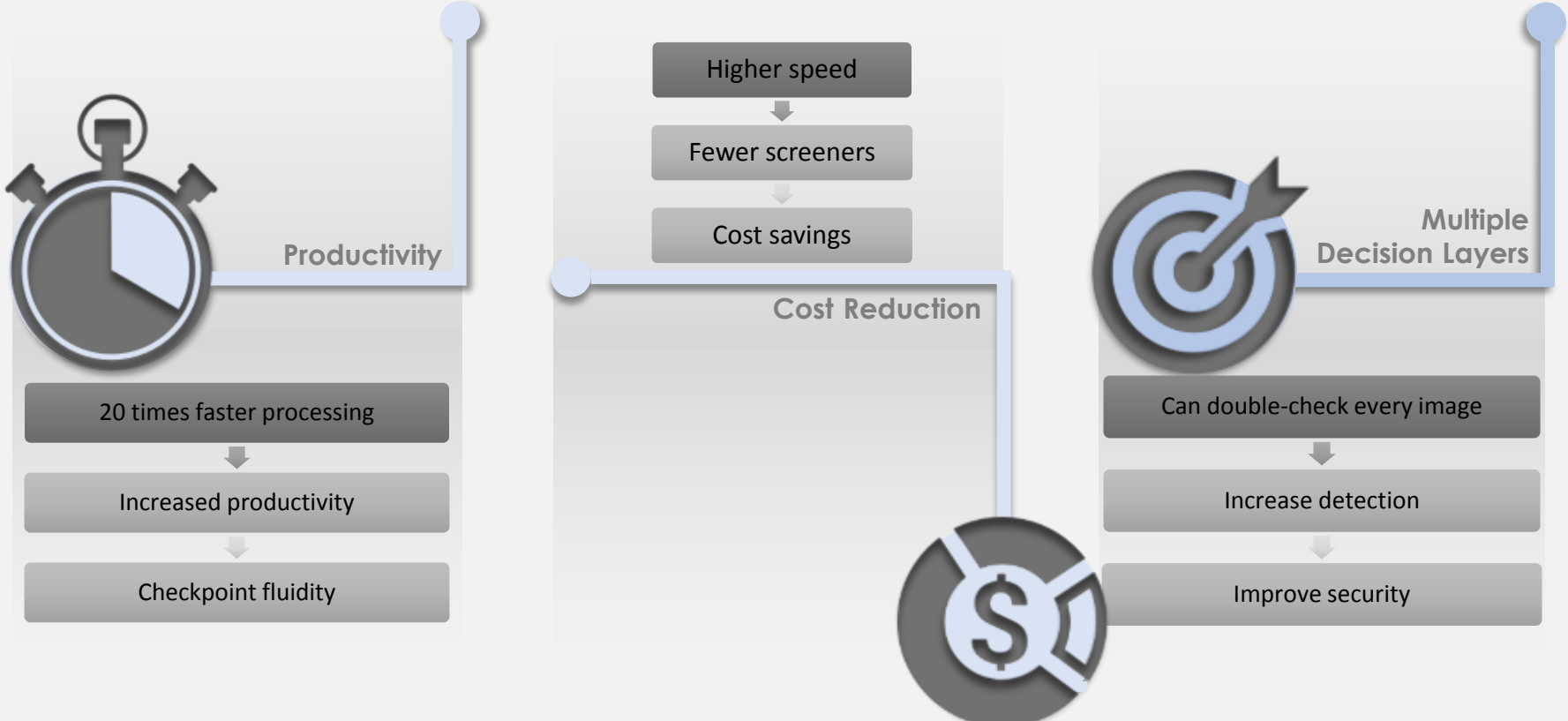
## Background

Checkpoint		HBS
Athens International Airport	<b>Location</b>	London Gatwick Airport
46	<b>Screeners</b>	30
Varied	<b>Background</b>	Varied
Smiths – Offline	<b>Machine</b>	Smiths/Rapiscan/L3 – Offline
AMM/BLU/DG/GUN/IED	<b>Threat type</b>	IED/DG
137,600	<b>Images</b>	35,400
3 images per second	<b>Rate</b>	3 images per second



# InnerEYE

## Advantages



# InnerEYE

## Advantages

### Online feedback:

- ✓ Each image seen
- ✓ Real-time TIP feedback
- ✓ Fatigue monitoring

Real-time  
performance  
assessment

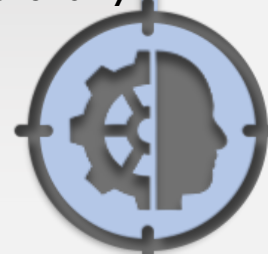


Specialisation

- ✓ Fewer screeners = higher quality
- ✓ Possibility to define employee profile
- ✓ Specialisation of individuals on particular threats

- ✓ Track record of brainwave activity for each and every image
- ✓ Track record of duration of brain activity per shift, etc.

Audit trail functionality



# InnerEYE

## Summary

**Revolutionise** your existing security process



...without changes to existing Security hardware infrastructure



**Optimise** your security costs



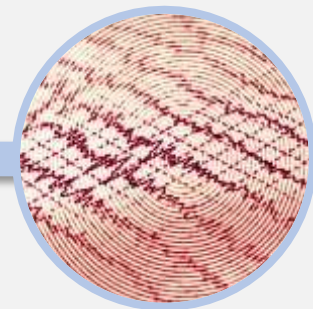
by improving both staff efficiency and security process flow



**Improve** quality assurance and safeguards for your x-ray screening teams



through the use of real-time analytics and layered decision processes



# InnerEYE DEMO

- X-ray screener with 6.5 years of experience in cabin baggage screening at Athens International Airport, Greece
- 1,600 x-ray cabin baggage images containing innocent items, firearms and IEDs
- Screening time: 10 minutes

## **SCREEN #1**

**Image flow as seen by  
screener**

## **SCREEN #2**

**Images flagged by  
InnerEYE**





**THANK YOU**



## Activity 4.2

# Explosive Detection Canines – Live Demonstration

### Presenter:

**Mr. Azat Zaripov**, Deputy  
Director, Aviation Security  
Management Department, PJSC  
"Aeroflot - Russian Airlines"

### Presenters:

- **Inspector Akrum Ghabban**, Officer in Charge, Police Dog Services, Royal Canadian Mounted Police (RCMP)
- **Sergeant Germain Daigle**, Dog Handler, RCMP Special Support, CBRNE Operations and **Evette**

# **ICAO GLOBAL AVIATION SECURITY SYMPOSIUM – AVSEC 2017**

## **Development and implementation of Olfactory Biotechnical System for EDD**

Azat G. Zaripov, Deputy Head of Aviation Security Management Department  
PJSC «Aeroflot – Russian airlines»

Montreal, Canada  
12-14 September 2017

# Introduction

## Application of patrol dogs in huge international airports

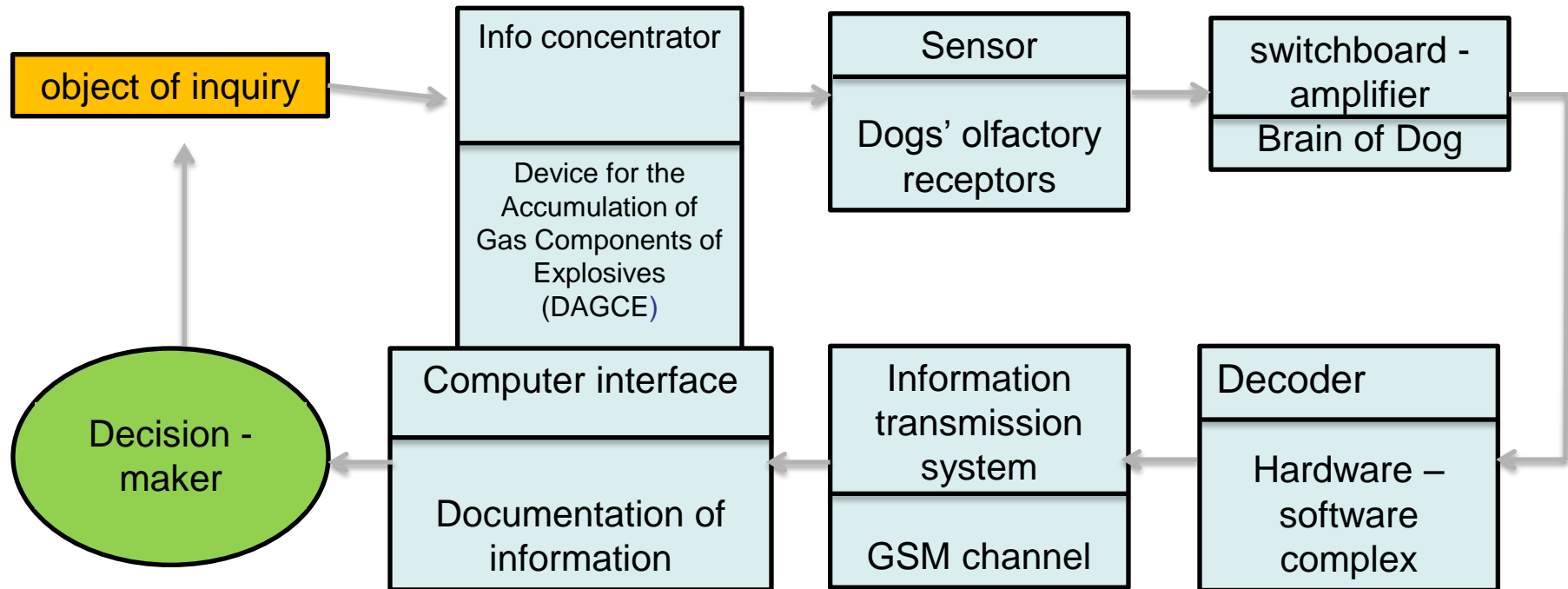


### Key issues:

- Efficiency of patrol dogs' application fully depends on environment conditions
- Time limits of non - stop activity of patrol dogs
- lack of objective (instrumental) control of dogs' activity
- lack of full - value standard and methodical base regulating application of dog - detectors for the purposes of transport security

## Olfactory biotechnical system

Detecting target substances by means of Sulimov dog and hardware-software complex for objectification



**Principle: technique – animal (bio - system) – human is provided**

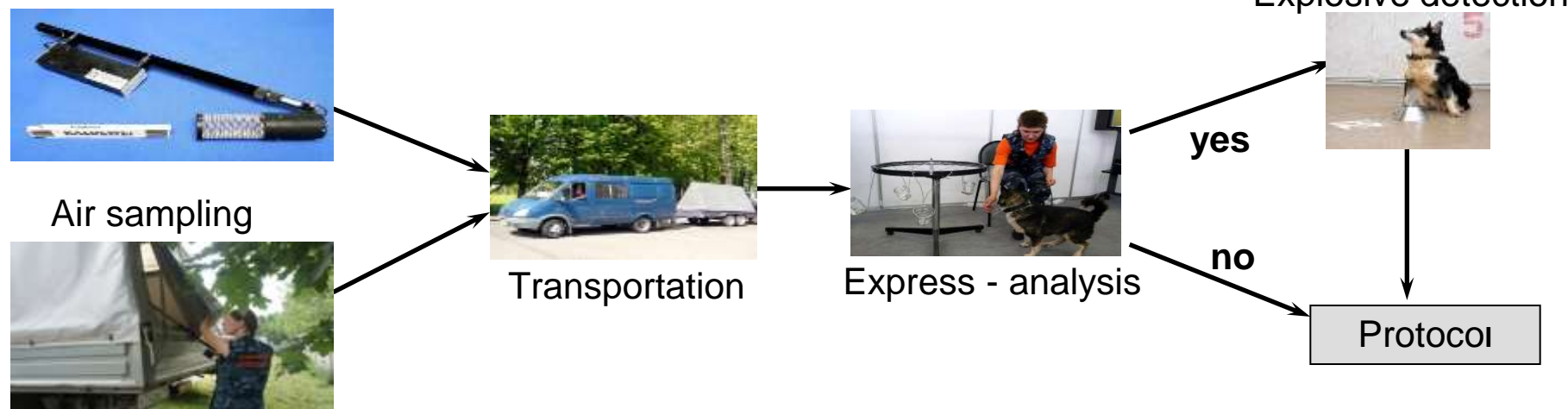
# Sulimov Dogs within aviation security department of Aeroflot



- aircraft control
- cargo control
- patrols in the airport facilities
- detecting target substances at suspicious objects
- olfactory monitoring technology
- insider risk mitigation

# Remote Explosive Scent Tracing (REST)

REST is optional olfactory research with specially trained dogs acting as a sensor, and filters with air pumped through them from target object subjected to inspection

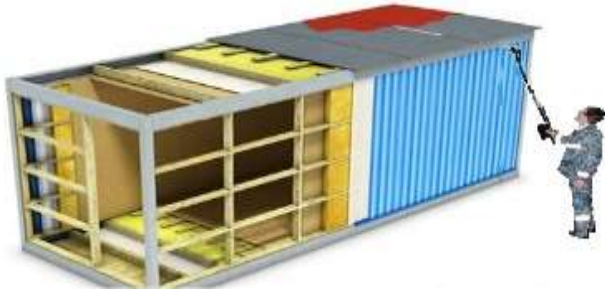


**Application of REST allows organization of systematic and continuous inspection of probable places of production, storage and transportation of subversive and terrorist means. It complies with the concept of "monitoring" and provides control over transported cargo and detection of explosive objects and other forbidden substances**

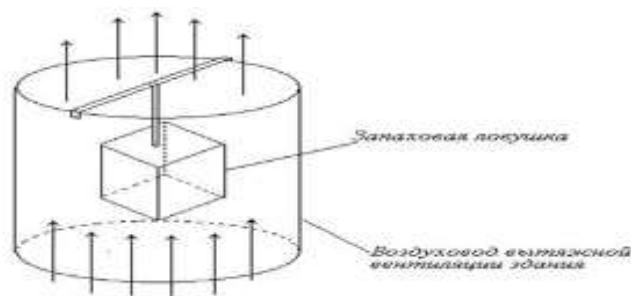


# REST Application

Application of REST to high risk transport vehicles and containers inspection allows definition/exclusion of presence of objects and substances with specific olfactory signs without opening of locking devices of containers



Sampling is carried out by means of specially developed Device of accumulation of gaseous components of explosives (DAGCE) equipped with electrical activator of air consumption



## Role of objectification

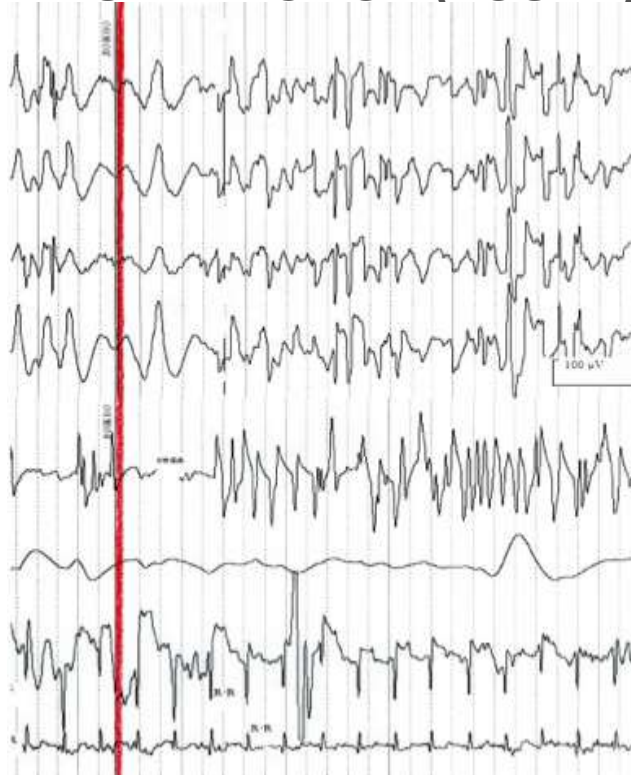
- Reliability of research results is a priority for decision-making
- Reliability of olfactory research results in target substances detecting is provided by odorological dogs' choice objectification
- Upon results of search activity a protocol is automatically formed – it is based on objective data of psychophysiological characteristics



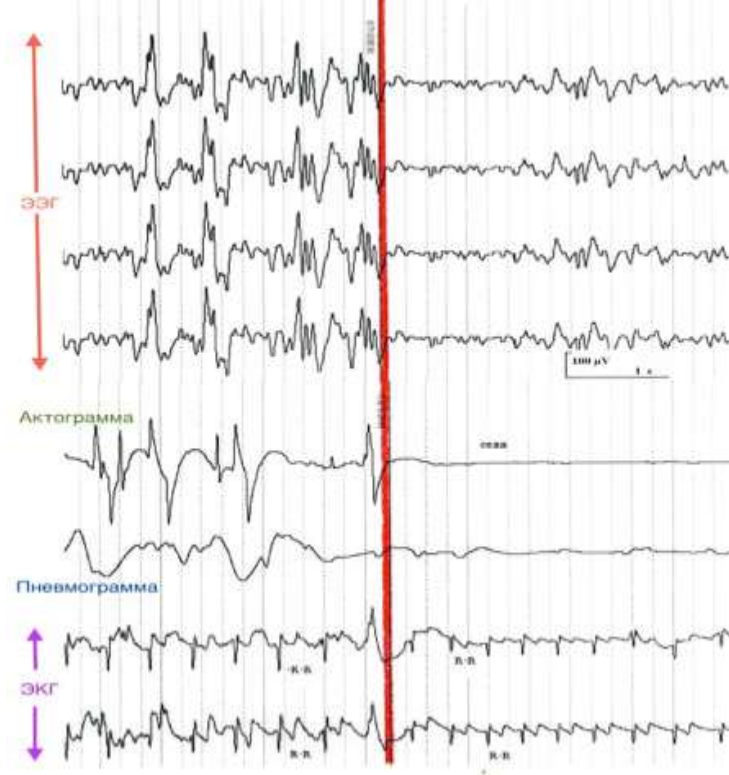


# Objectification of dogs' search activity

**TRUE REACTION (FOUND) FALSE REACTION (NOT FOUND)**

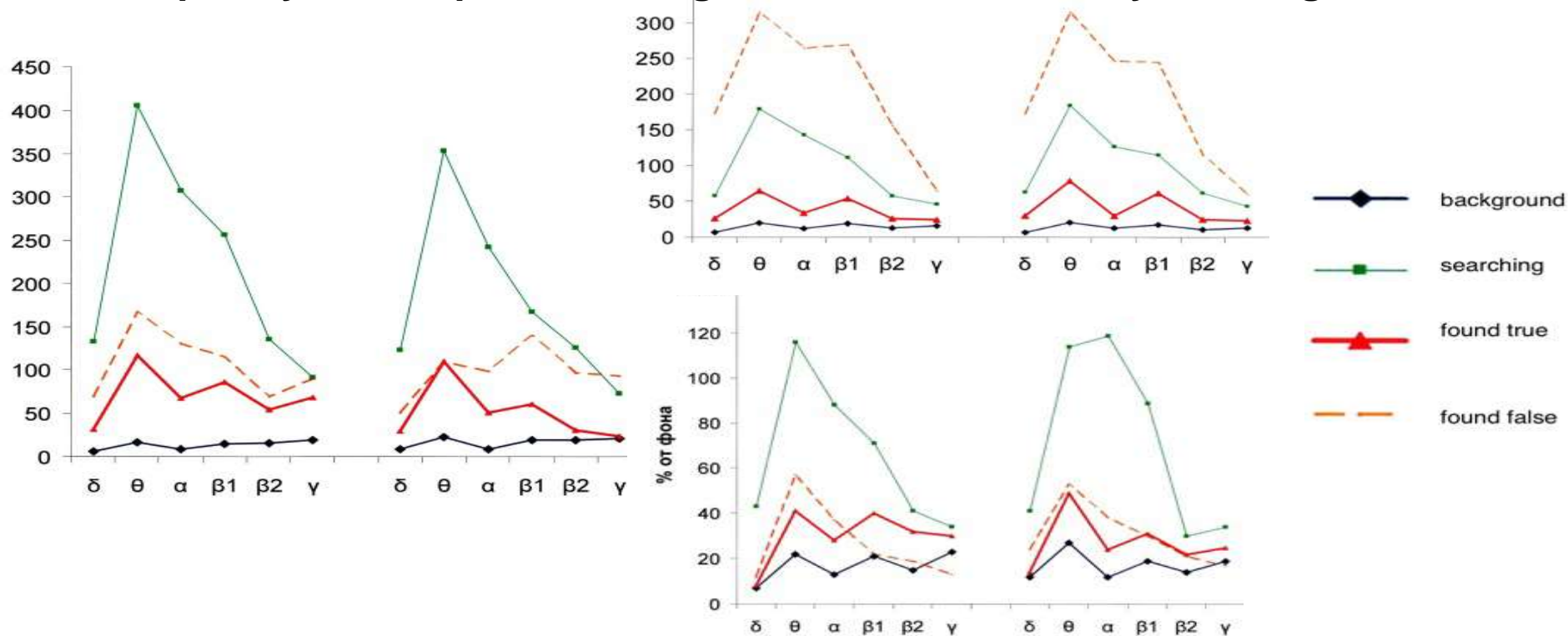


**False**



**True**

## Individual results of EEG analysis: Frequency and amplitude changes of the main EEG rhythm range 1-30 Hz



Because of escalation of international terrorism there is particular worldwide interest in application of EDD capable to detect explosive items and substances by their odor. Special interest to Aeroflot research in the field of cynology was demonstrated by our colleagues (Montreal, Paris, Kuala Lumpur, London)

Particularly at the ICAO 27-th AVIATION SECURITY (AVSEC) PANEL, (Montréal, March 2016) as a result of consideration and discussion of Aeroflot report the following conclusions and recommendations have been made:

- deploying explosives detection dogs (EDDs) has potential benefits
- it's necessary to continue exploring practical application of EDDs
- it's reasonable to organize development of the advanced methods of best practice of EDDs through the WGIAS
- for distribution of EDDs methods among the States it is recommended to include them into ICAO's technical assistance program to Member States

## Olfactory Biotechnical System allows:

- to carry out systematic and regular cynological inspection of the controlled objects to provide their security from explosions of a criminal or terrorist orientation;
- to carry out olfactory investigation in crowded places during mass actions;
- to control transport vehicles and transported freights in order to exclude the delivery of explosives;
- to increase efficiency of dogs' search activity;
- to provide objectification of dogs' search activity and its documentation.



*Sincerely yours*   


# RCMP



ROYAL CANADIAN MOUNTED POLICE

## Royal Canadian Mounted Police Police Dog Service



**Inspector Akrum Ghadban**  
**Officer in Charge**  
**RCMP Police Dog Service**





# Royal Canadian Mounted Police

103

**Canada's National Police Force**



# Police Dog Service Training Centre



**Police Dog Service  
established in 1935**



Royal Canadian Mounted Police  
Gendarmerie royale du Canada

Canada



# Location



**Innisfail, Alberta, Canada**



# Police Dog Service Training Centre



- 25 Staff members
- 8 Whelping Units
- 42 Outdoor Kennels
- 21 Indoor Kennels
- 4 Quarantine Units



# RCMP Dog Teams

**146 General Duty Police Dog  
Teams Across Canada**

**21 Detection Profile Teams**

- Narcotics, or
- Explosives





# External Agencies

## 7 Teams Across Canada



Royal Canadian Mounted Police  
Gendarmerie royale du Canada

Canada

# Multi Purpose Police Service Dog



- Tracking Human Scent
- Searching Human Scented Evidence
- Narcotics / Explosives Searching
- Criminal Apprehension / Handler Protection
- Firearms Detection
- Cadaver Searching
- Obedience / Agility



# Tracking Human Scent



**Level 1 - Rural**

**Level 2 - Industrial / Suburban**

**Level 3 – Residential**

**Field Validation – City Centre (Hard Surface)**

# Searching

- **Evidence at Crime Scenes**
- **Stolen / lost property**
- **Human scent**
- **Firearms / Expended shell casings**
- **Trained Odours**
- **Search and Rescue**



# Criminal Apprehension

- On command
- Protect the handler
- Protect themselves





# Public Order / Riot Response



Royal Canadian Mounted Police  
Gendarmerie royale du Canada

Canada



**Emergency Response Team**

# Avalanche Search and Rescue



Royal Canadian Mounted Police  
Gendarmerie royale du Canada

Canada

# RCMP Breeding Program

- **Global Demand for German Shepherds (Working Lines)**
- **World Trade Centre – 911**
- **Quality and Quantity**
  - Require 30-35 dogs trained
- **Goal of producing quality working German Shepherds**
- **26.8 % of acquired dogs would complete training**

## Dilemma - No Dogs



# Why Use German Shepherds

- Best all around dog for police work
- Work well in all provinces & Territories
- Courageous, trainability, confident, intelligent, powerful, loyal
- Excellent versatility of the breed
- Multi profile dog (criminal apprehension, tracking, drug or explosives trained)



# Traits

- Foundation lines from Czech Rep/Slovakia, East Germany
- Sound temperament
- Aggression – natural prey / defence
- Tracking – desire to follow a human scent
- Searching / hunting ability
- Trainability, energy, high drive
- Medium stature dogs



# Explosive/Narcotic Searching

- Started in 2<sup>nd</sup> level of training
- Take advantage of the dogs natural instinct to search
- Introduce odours individually
- Use passive confirmation





# The Search Wall



# Search Wall

- Total control of environment
- Establishes proper search sequence (search, odour recognition, pursuit to source, sit confirmation, reward)
- Control distractions
- Patterning (dog following handler directions)



# Search Wall

- Pursuit to source
- Timing of reward
- Hide focus
- Passive confirmation



# Search Wall

- Enhances ability of handler to learn or read the dog's behaviour
- Easy to manipulate training / learning environment
- Control contamination
- Control of corrective training
- Portable



# Search Wall



# Progression

- Once search sequence is established
- New environments (warehouses, offices, vehicles, public places etc)
- Add environmental distractions
- Add odour distractions



# Search Areas

- Hotel rooms
- Plane/ Train / Bus
- Vehicles
- Outdoor
- Cargo
- Baggage
- Terminal





# The Way Forward

- Work with international partners to identify emerging threats
- Introduction of new odours
- Fentanyl



# The End!



# Case Study 4.6

## Behaviour Detection

**Mr. Ilan Weinmann**

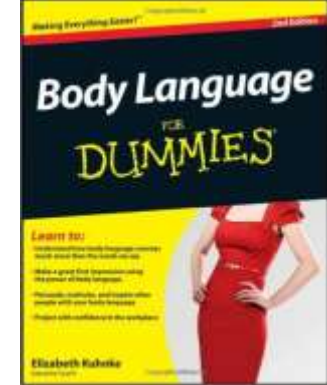
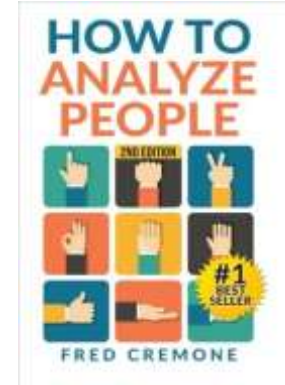
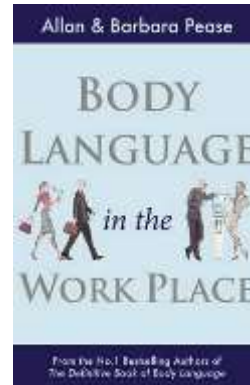
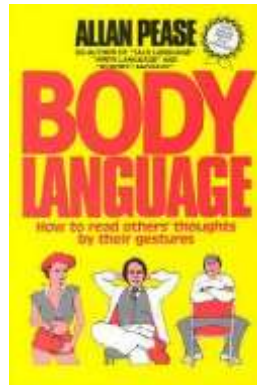
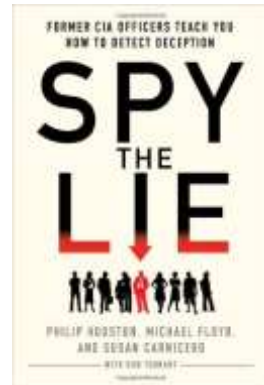
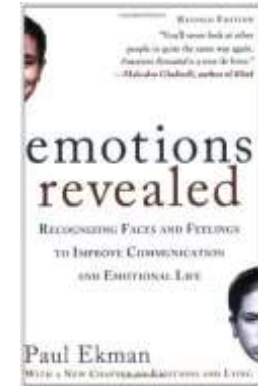
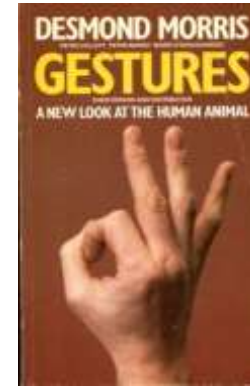
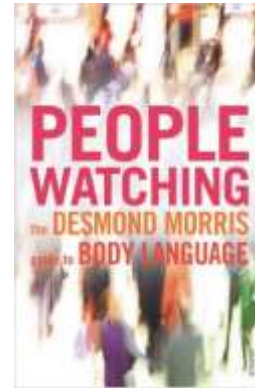
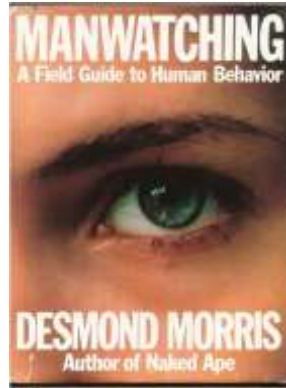
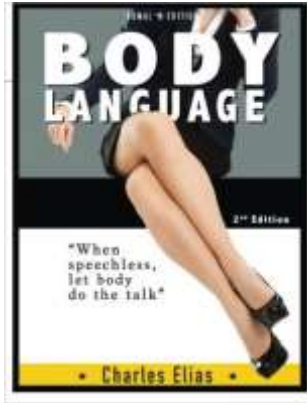
Director, Product Quality Control and Training, ICTS Europe Holdings

**Mr. Declan Troy**

Manager, Security, Dublin Airport

# BEHAVIOR-DRIVEN RISK ASSESSMENT

## The Passenger Experience



Ilan P. Weinmann - Director, Product Quality Control & Training - ICTS Europe

Ph.: +41-79-9161285 - Email: [ilan.weinmann@ictseurope.com](mailto:ilan.weinmann@ictseurope.com)



# Significant In-flight Security Events After 9/11



**Richard Reid, Shoe Bomber  
Paris CDG, 2001**



**Amanat Nagayeva  
Chechen Widow  
Moscow DME,  
2004**



**Oumar Farouk  
Abdulmutallab,  
Underwear Bomber, 2009**



**Metrojet bombing, Egypt (Sinai) 2015**



**Daalo Airlines, Somalia, 2016 (PED: laptop)**

## Two Key Judgments (2016)

*“Among domestic terrorists there is a change from a long radicalization process towards rapid recruitment”*

*“The nature and structure of IS training apparently enables its operatives (including returnees) to execute terrorist acts in an emotionally detached manner”*



# Interviewing Passengers for Behaviour-driven Assessment of Risk (Controlled Cognitive Engagement)

**Scope:** Detection of deceptive individuals (offenders are deceptive)

**Method:** Verbal engagement for behaviour-driven risk assessment:  
(controlled, structured, measurable interview)

- I. Assessment of the individual's behaviour when non-deceptive ("baseline")*
- II. Increasing the mental load: Questions on unpredictable topics, in an unpredictable sequence & follow-up questions for triggering involuntary reactions, and shifts in the behaviour and the narrative of deceptive passengers*
- III. Observing and assessing the passenger's reactions for any change, indications of deception, unusual reactions, errors and ruptures*



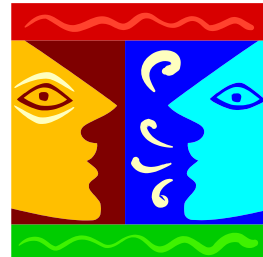
The polygraph test



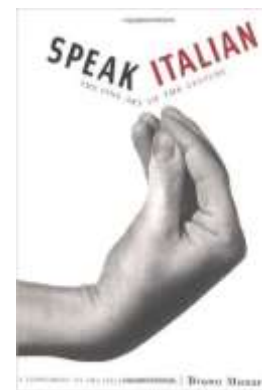
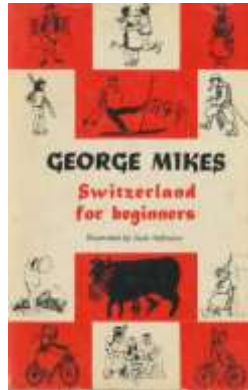
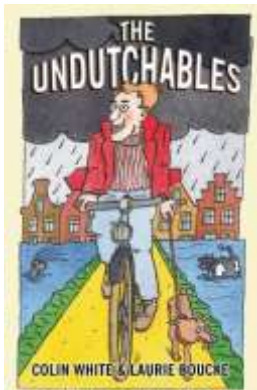
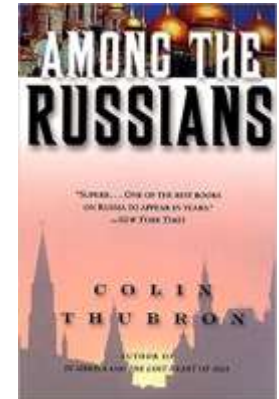
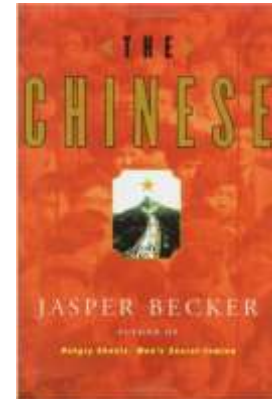
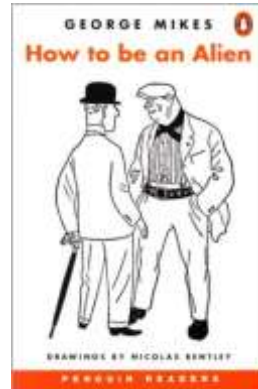
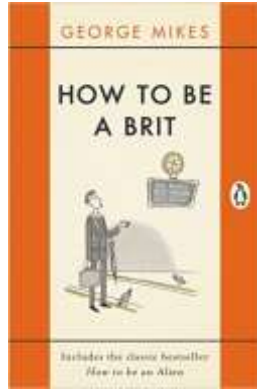
# Interviewing Passengers for Behaviour-driven Assessment of Risk

## Main Training Topics

- ❑ **Kinesics:** body language, facial tells, and decoding normative and deceptive behaviour
- ❑ **Engagement & interviewing techniques**
- ❑ **Customer service**
- ❑ **Decision making**
- ❑ **Notification and reporting**
- ❑ **Interviewing role play and behaviour observation exercises**



# Cultural Awareness



# Passenger Interviewing - Facts & Figures

## Interviewer qualities

Verbal communicator, cultural awareness, assertiveness, a positive attitude/demeanor. No specialists. No higher education required.

## Duration of the training

3-4 days + 3-4 days OJT

## Training failure rate

< 10%

## Duration of a security interview

2-3 minutes

**Acceptance by staff and pax (customer service): Excellent!**

## Outcome of the interview

Enhanced security

0.1 - 6% (1%)

## TravelDoc fraud prevention \*

Impostors

138 (0,07%)

Forgeries

286 (0,15%)



\* Based on observation of 186.660 pax at one airport, January-June 2017

# The Human Factor for Behavior-driven Risk Assessment

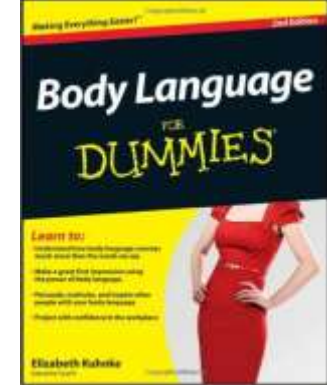
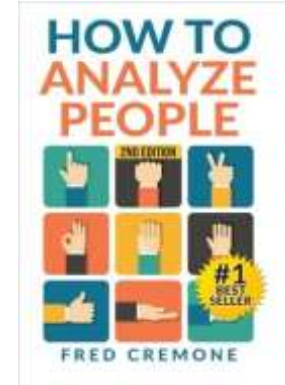
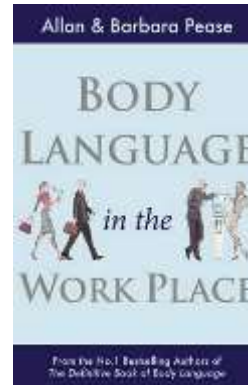
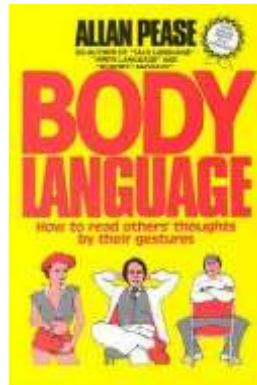
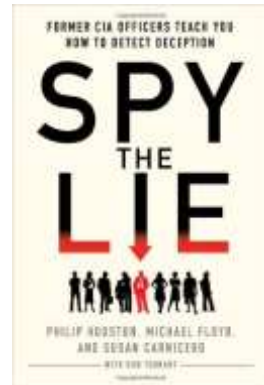
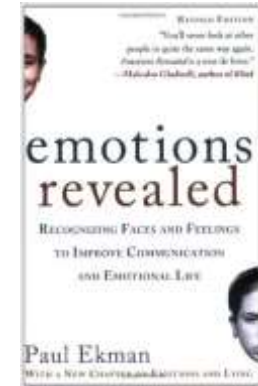
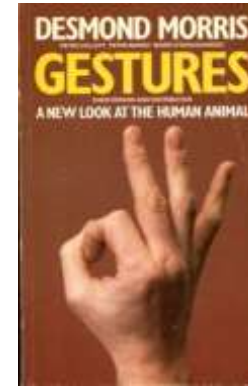
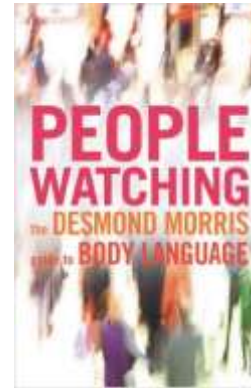
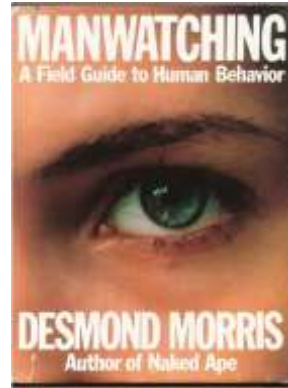
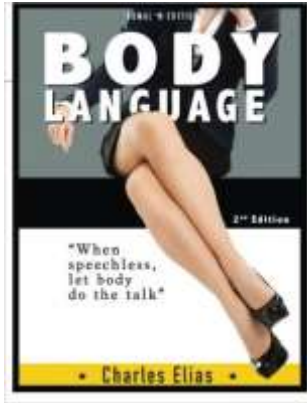






# BEHAVIOR-DRIVEN RISK ASSESSMENT

## The Passenger Experience



Ilan P. Weinmann - Director, Product Quality Control & Training - ICTS Europe

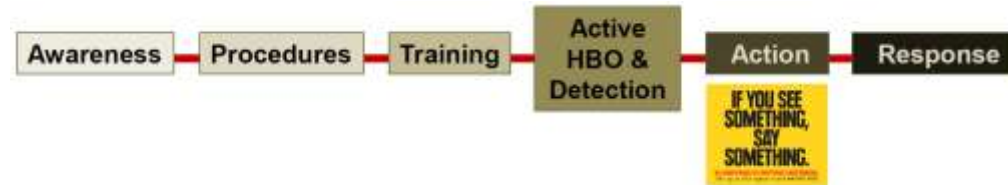
Ph.: +41-79-9161285 - Email: ilan.weinmann@ictseurope.com

# Security Awareness and Behavior Observation Dosed Training for Various End-users

1. Dedicated BDOs
2. Immigration fraud prevention agents
3. Guards, access controllers, checkpoint operators
4. Check-in operators
5. Airside staff
6. Staff of critical infrastructures
7. CCTV operators
8. Managers and supervisors
9. HR staff
10. Passenger interviewers

*The added value:  
insider threat mitigation*

**DetAct**







# Behaviour Detection Operations Dublin Airport

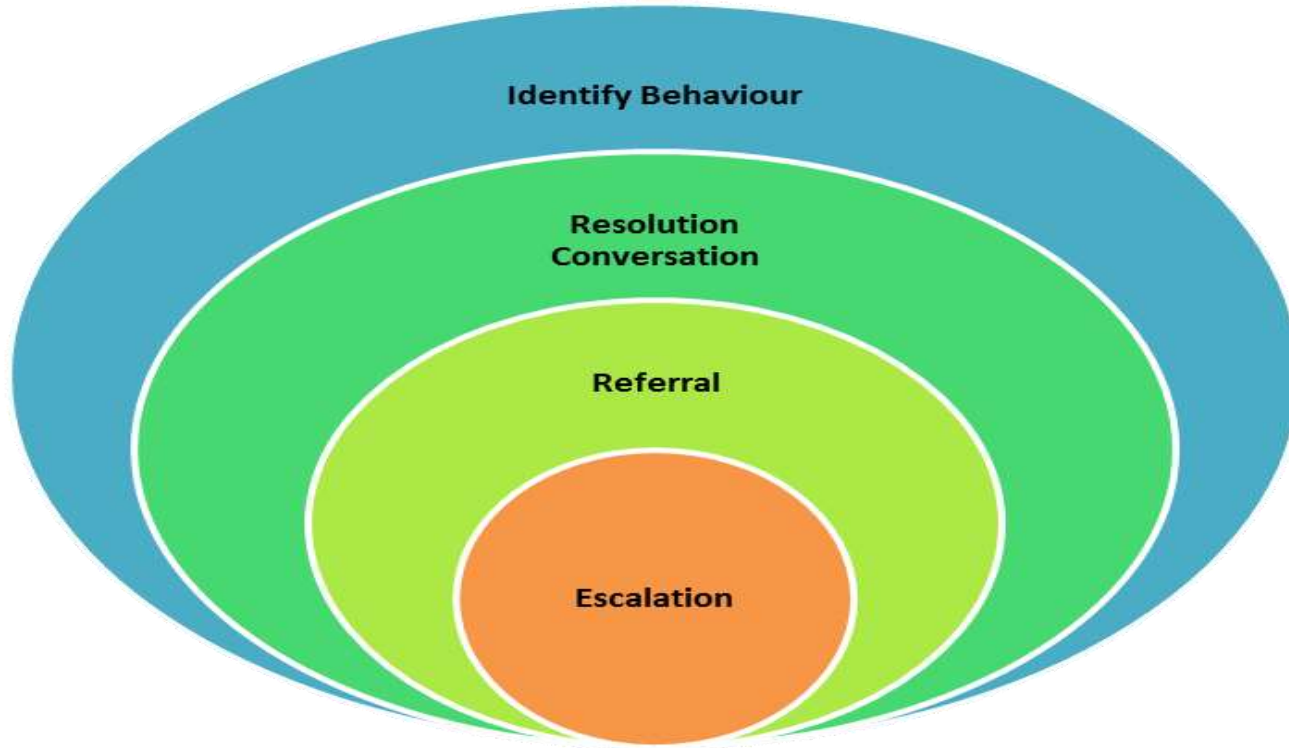


Declan Troy, daa

# Background

- Decision to Pilot Behaviour Detection
- Behaviour Detection Pilot & establishment of a Permanent Behaviour Detection capability

# Methodology



# Performance Management

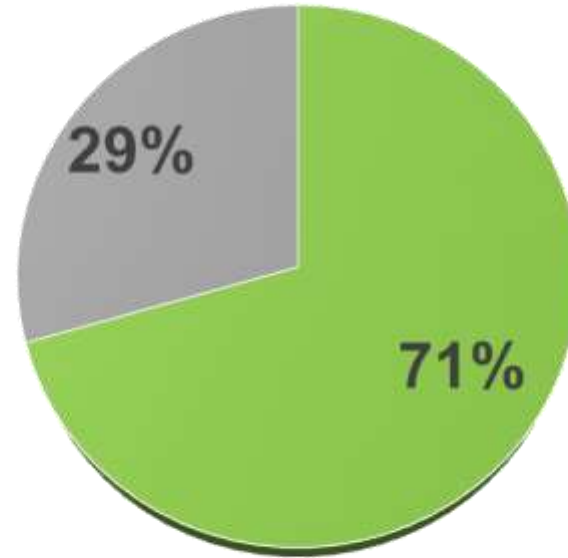


# Benefits of Behaviour Detection



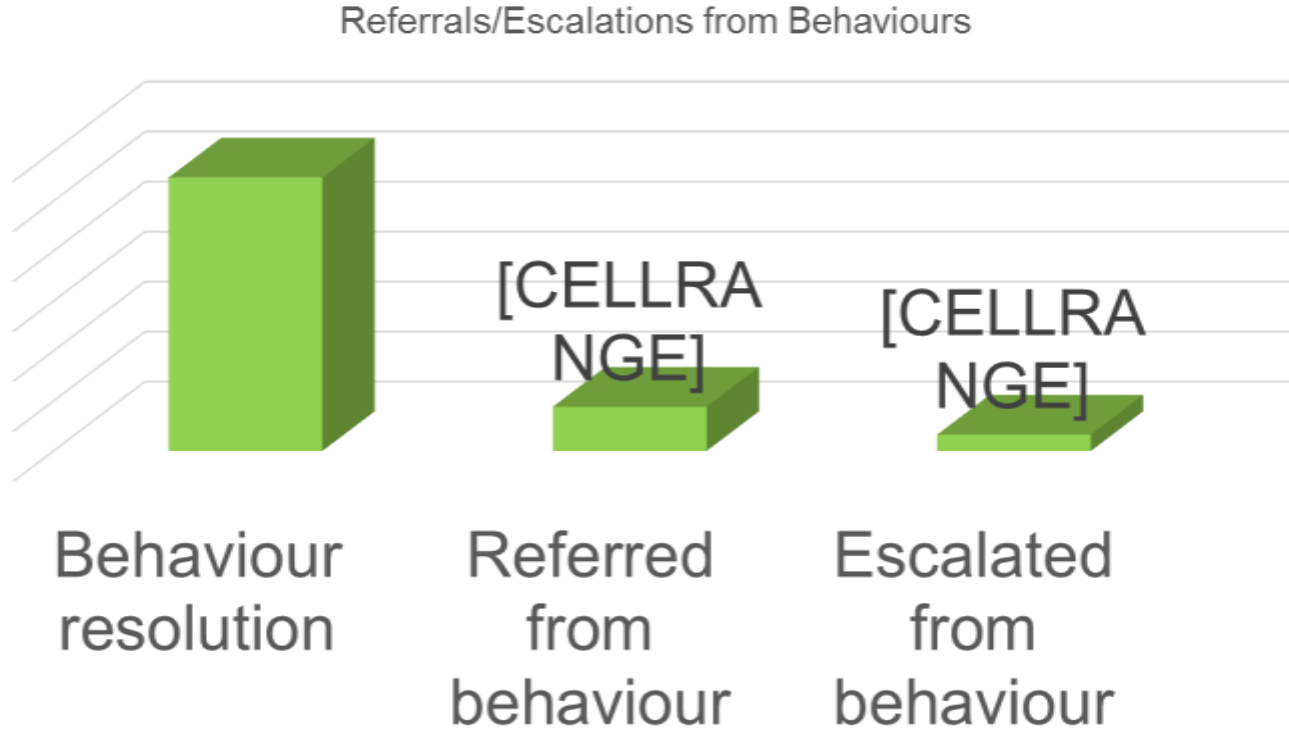
# Conversations

- Behaviour Resolution
- Random Conversations

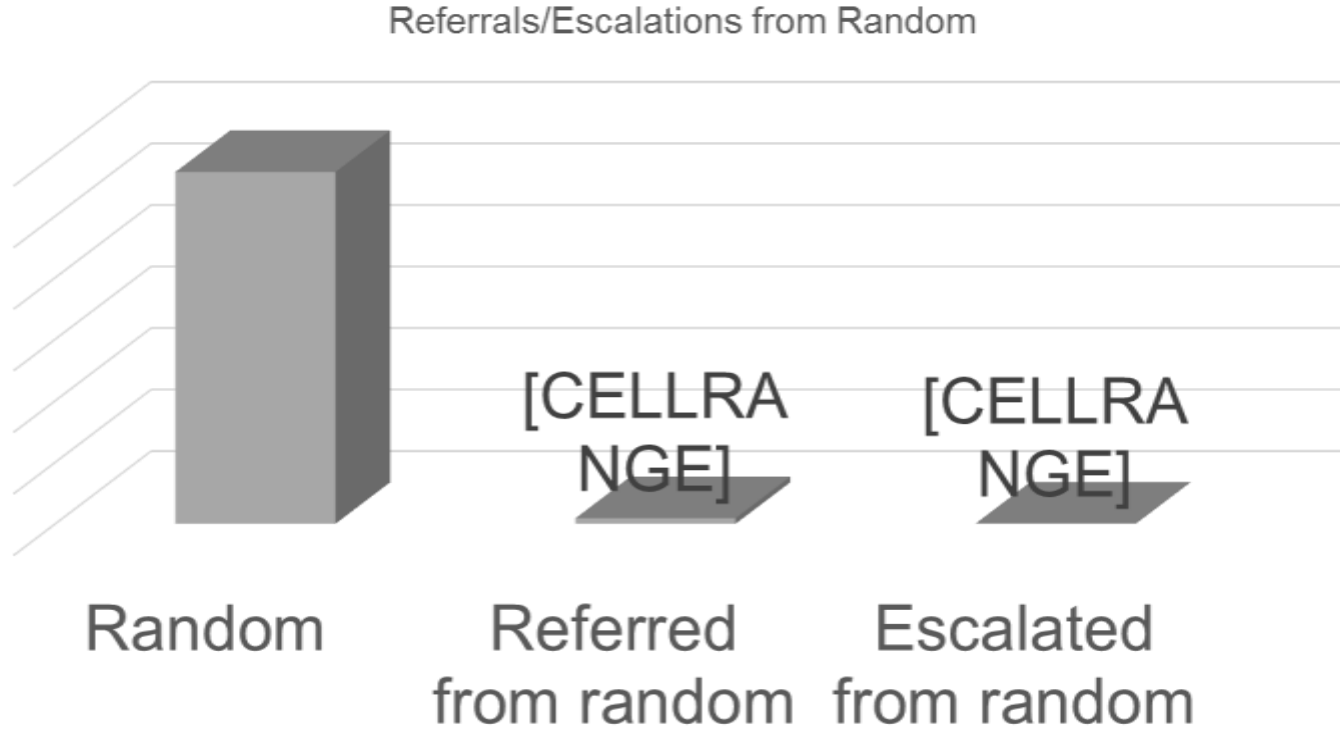




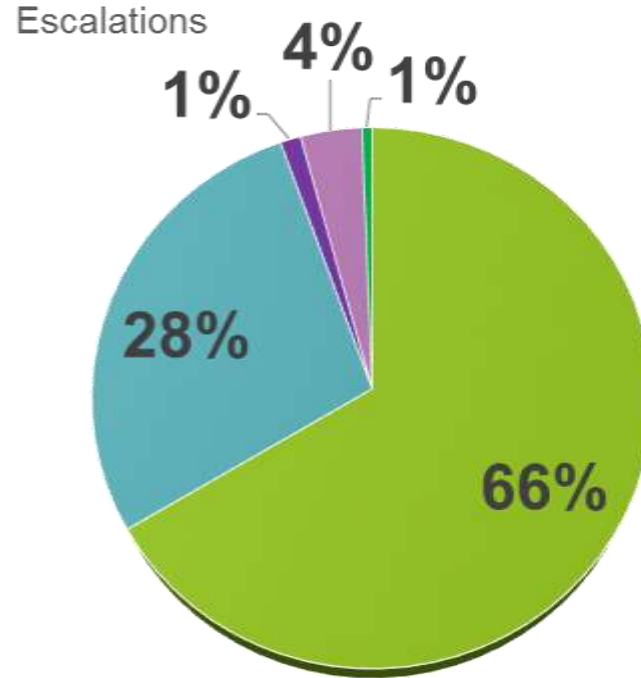
# Referrals/Escalations from Behaviours



# Referrals/Escalations from Random



- Customs
- Airport Police
- Immigration
- Supervisor
- State Police



# Thank You!



# Plenary 4

## Addressing Emerging Threats through Technologies

### Moderator:

**Mr. Domenic (Nick) Bianchini**

Co-Chair, ICAO Working  
Group on Innovation and Deputy  
Director, ORCA, TSA, United States

### Panellists:

- **Mr. Kenn Mann**, Chairman, Security Screening and Detection Working Group, European Organisation for Security
- **Mr. James McDonald**, Head, Threat, Risk & Innovation Policy, DfT, United Kingdom
- **Mr. Dave Hernandez**, Deputy Program Manager, Explosives Division, Science and Technology Directorate, Department of Homeland Security, United States
- **Ms. Anne Marie Pellerin**, Managing Partner, Lam Lha Security Innovation

# ICAO AVSEC 2017

## ADDRESSING EMERGING THREATS THROUGH TECHNOLOGY

**SEPTEMBER 2017**

**Ken Mann**

**Chair, EOS Security Screening and Detection Working Group**

**Director Checkpoint Integration, Rapiscan Systems**

[Kmann@rapiscansystems.com](mailto:Kmann@rapiscansystems.com)

**+44 773 441 9220**



Liquid Explosive Detection Systems, MatID



X-ray



X-ray, LEDS, EDS for Cabin Baggage



LEDS, EDSCB, RadNuc



communications

Explosive Trace Detection, Security Scanners,  
EDS, X-Ray, EDSCB, Remote Screening, TRS



EDSCB / X-Ray components



LEDS, EDSCB, Remote Screening,  
Tray Return Systems



EDS, ETD, EDSCB, X-ray, LEDS, WTMD,  
TRS, RadNuc



LEDS, ETD, SSc, EDS, X-Ray, EDSCB, RadNuc,  
MatID





# Threat – trend towards concealed IEDs

1960/70s	Hijacking	Guns / <i>knives</i>	Cabin / person
1980s	El Al, Air India, Lockerbie	IED	Hold
1990s	Bojinka, Hijacking	Guns, Knives, IED	Cabin / person
2001	9/11, Shoe Bomber	Knives / IED	Cabin / Person
2006	Liquids plot	IED	Cabin
2010	Underpants	IED	Person
2011	Printer Cartridges	IED	Cargo
2012	Underpants 2	IED	Person
2015	Metrojet – drink can	IED	Cabin ? / Hold? / Insider
2016	Dallo – lap top	IED	Cabin / Insider
2017	Personal Electronic Devices	IED	Cabin
2017	Australia – meat grinder	IED	Hold?



# Why go beyond the ICAO baseline?

- Are ICAO minimum technology standards enough?
- Detection of the key threat (artfully concealed IEDs) can/must be improved
- Authorities in USA, EU, Canada, Australia working hard to improve and reduce risks from explosives:
  - Requiring LEDS, ETD, Security Scanners, EDS, EDSCB etc
  - Defining detection requirements and testing
- Threat is global not just EU / US / Canada / Australia
- Results of weaker security:
  - Gate screening, electronics bans or even no-fly – inbound security a big concern for many countries
  - Effect on trade and tourism of attacks can be catastrophic
  - Reputational damage difficult or impossible to repair



# Improved technologies are key

Improved technology brings security and potential facilitation and efficiency

- EDS for Cabin Baggage brings better detection PLUS potential efficiencies - platform for new threats detection
- Body scanners better than metal detectors– find all threat types, targeted search rather than random
- Explosive Trace Detection better than x-ray or metal detectors alone – specifically detects explosives
- EDS better security than x-ray for hold bags and much cargo – much more efficient
- LEDS facilitate and improve security – Liquids are a real threat
- Automation / remote screening brings better detection and passenger facilitation

Manufacturers develop the capability and must be involved in the development of requirements



# Example – EDS for Cabin Baggage

## Better Security

- High levels of detection
- Better tools for alarm resolution
- Platform technologies – allow new threats to be added

## Improved Airport Operations

- Higher security
- Potential for
  - less images per PAX
  - Higher throughput
  - Risk based

## Improved Passenger Experience

- Potential for:
  - No/less divestment
  - Liquids back?? Or at least less requirement to search....

### EDS-CB Standard C1, C2, C3 - Concept of Operations (CONOPS)

	Standard C1	Standard C2	Standard C3
Liquids, Aerosols and Gels (LAGs)	Screened Separately	Screened Separately	Can be left inside the cabin baggage
Portable computers/ other large electrical item	Screened Separately	Can be left inside the cabin baggage	Can be left inside the cabin baggage



However, if threat levels rise, benefits may have to be traded for better detection – e.g. PEDS screening

- Threat is global – artfully concealed Explosive threat is the trend which must be addressed
- Technology a big part of the solution – need to specifically find explosives (x-ray / WTMD alone are no longer enough)
- Technologies need to be developed by manufacturers in partnership with global regulators and end users
- New technologies now provide screening platforms
  - new threat materials can be added
  - detection thresholds can be adjusted
  - risk based security can be facilitated
  - operational efficiencies may be gained
- Cost of not deploying appropriate screening (or preventing attacks) is huge (or even catastrophic)

# **ICAO AVSEC 2017**

## **ADDRESSING EMERGING THREATS**

### **THROUGH TECHNOLOGY**

**SEPTEMBER 2017**

**Ken Mann**

**Chair, EOS Security Screening and Detection Working Group**

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**+44 773 441 9220**



Addressing Emerging Threats  
through Technologies

Landside Security

United Kingdom





30<sup>th</sup> June 2007





HM Government

## Science & Technology



Ministry  
of Defence

[dstl]

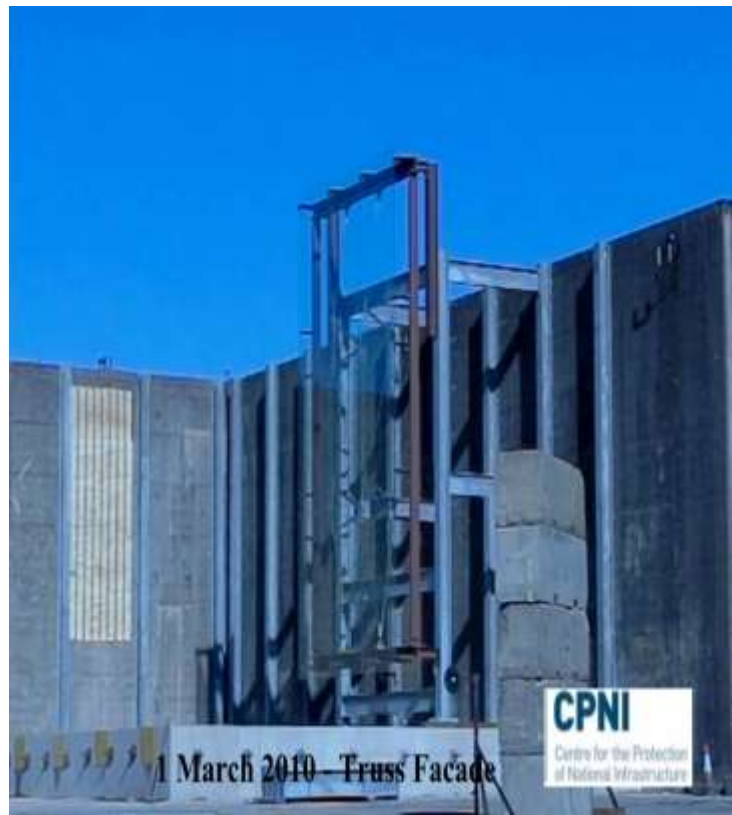


Department  
for Transport

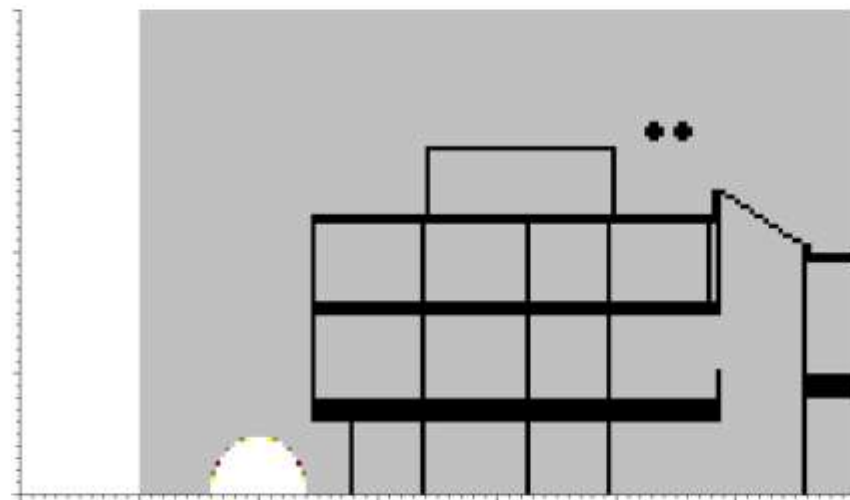


Home Office





Y Distance (m)



X Distance (m)



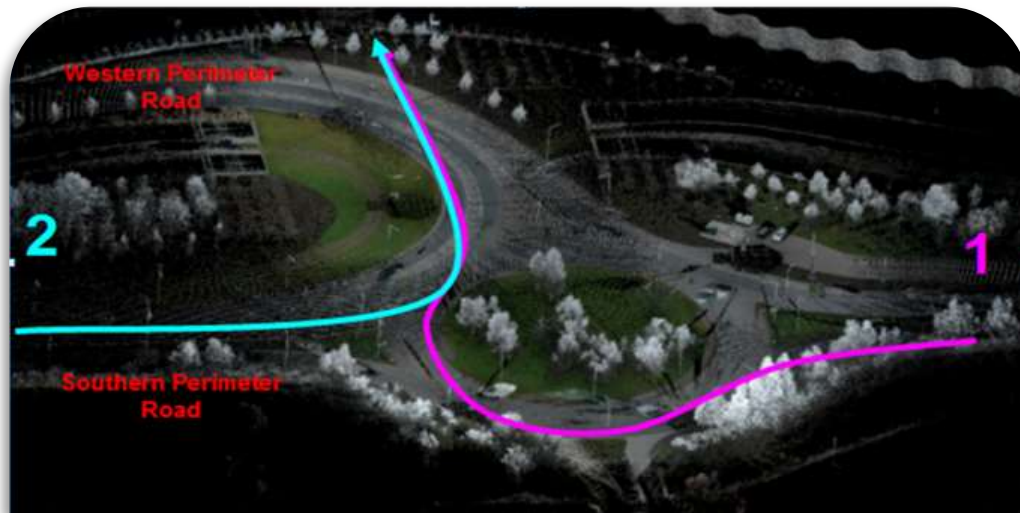




Terminal Front

Passenger Drop Off









If an armed attack happens, you should  
always follow the National Counter Terrorism  
Policing advice for everyone in the UK to

**RUN HIDE TELL**



# Crowded Places Guidance

See the latest guidance for your sector. Click on your sector to begin:



NIGHT-TIME ECONOMY



CINEMAS AND THEATRES



STADIA AND ARENAS



RETAIL



HEALTH



EDUCATION



PLACES OF WORSHIP



HOTELS AND RESTAURANTS



VISITOR ATTRACTIONS



COMMERCIAL CENTRES



TRANSPORT

NaCTSO

COUNTERTERRORISM  
POLICING



## Transport

### 1. Introduction

This document is a guidance for the transport sector. It provides information on the risks to the transport sector from terrorism and the measures that can be taken to reduce these risks. The document is intended for use by the transport sector and the police.

### 1.1. Overview

The transport sector is a key part of the economy and is a major target for terrorism. The risks to the transport sector from terrorism are high and the measures that can be taken to reduce these risks are complex. This document provides information on the risks to the transport sector from terrorism and the measures that can be taken to reduce these risks.

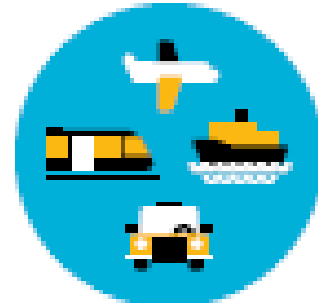


## Suspicious items

### 1. Bomb threats - PROCEDURES FOR HANDLING BOMB THREATS



## Bomb threats



TRANSPORT

## Aviation Security in Airport Development

Moving Britain Ahead

First developed **over 20 years ago**

Introduces the concept of  
**“security in design”**, where  
security measures are designed  
in during construction

**Thank You**

# DHS SCIENCE AND TECHNOLOGY

## Explosives Division Overview



**Homeland  
Security**

Science and Technology

**14 September 2017**

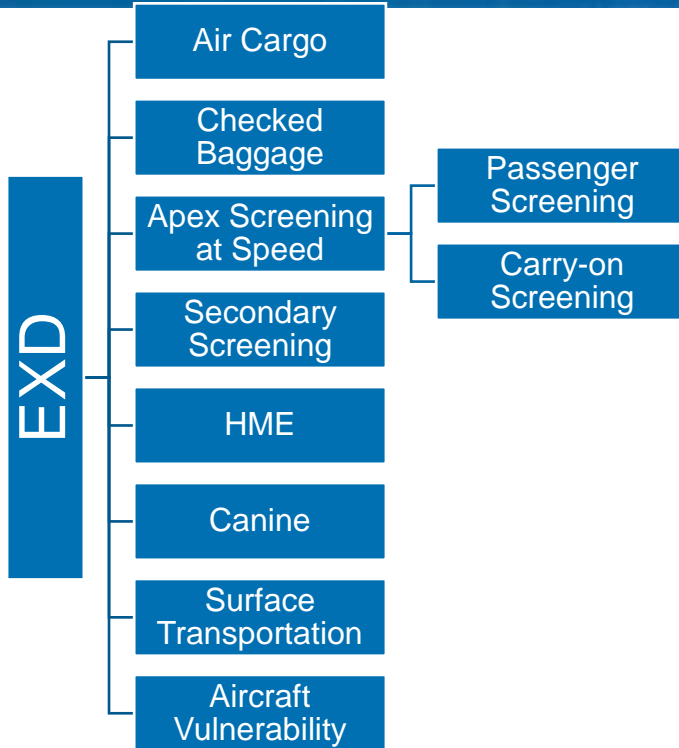
**David Hernandez**

Deputy Program Manager

Explosives Division

Science and Technology Directorate

# Explosives Division



## Mission:

- To develop technologies and systems to detect explosives and mitigate the effects of non-nuclear explosive blast.

## Operational Focus Areas:

- **Aviation Solutions** – detection of threats concealed in checked baggage, carry-on baggage, bottles, shoes, personal items, and air cargo
- **Intermodal Solutions and Facilities Protection** - protection of commuters and infrastructure in subway, maritime (ferries), and surface (buses and heavy rail) transportation



# Division Program Drivers

## Stream of Commerce/Operations:

- 2M passengers fly domestically every day
- Approximately 12 million pounds of cargo are transported daily on passenger aircraft in the US
- 95 percent of domestic passenger flights carry air cargo
- TSA currently screens 400M checked bags/year for explosives
- Mass transit - no fixed checkpoints, open system, 15M/day
- 2M+ employees & visitors enter GSA operated federal facilities daily
- GSA operates 9000+ facilities with more than 13,000 security guards



## Customers:

- TSA is the primary component supported by the Explosives Division
  - Office of Requirements and Capabilities Assessment and Adaptive Adversary

# Screening At Speed

Efficiently detect more advanced aviation threats while outpacing the growing population of travelers

## Alternative System Architectures

Passenger Identification

Passenger Vetting

Immersive Video

Risk Assessment

## Traditional R&D



Perimeter Security

Threat Resolution

## Enhanced Screening Technologies

## Expedited Screening Techniques

## Human/System Interface

Buy Ticket

Check-in

Transit to airport

Enter airport

Transit to security checkpoint

Go through security checkpoint

Enter Sanitized area

Board Plane

# Homemade Explosives

**Understand homemade and emerging explosive threats to improve detection technology, inhibit the unlawful use and manufacture of HMEs, and provide solutions to counter the threat**

- Investigate and characterize explosive detection characteristics, physical blast performance, and develop threat prioritization in order to support detection programs and identify mitigation strategies against current and evolving threats
- Validate and develop testing methods to create standards and methods to characterize non-ideal explosives, ensure safety protocols are sound, and develop analytical tools for evaluation of explosive threats
- Conduct vulnerability assessments and threat definition to inform detection



## Emerging Explosives Threats:

- Relative to manufactured conventional explosives, HMEs have highly variable properties (related to detection). A new detection strategy is needed to counter this threat.
- Threats emerge quickly and must be countered by dynamically reconfigurable screening capability

# Defining the Threat Space

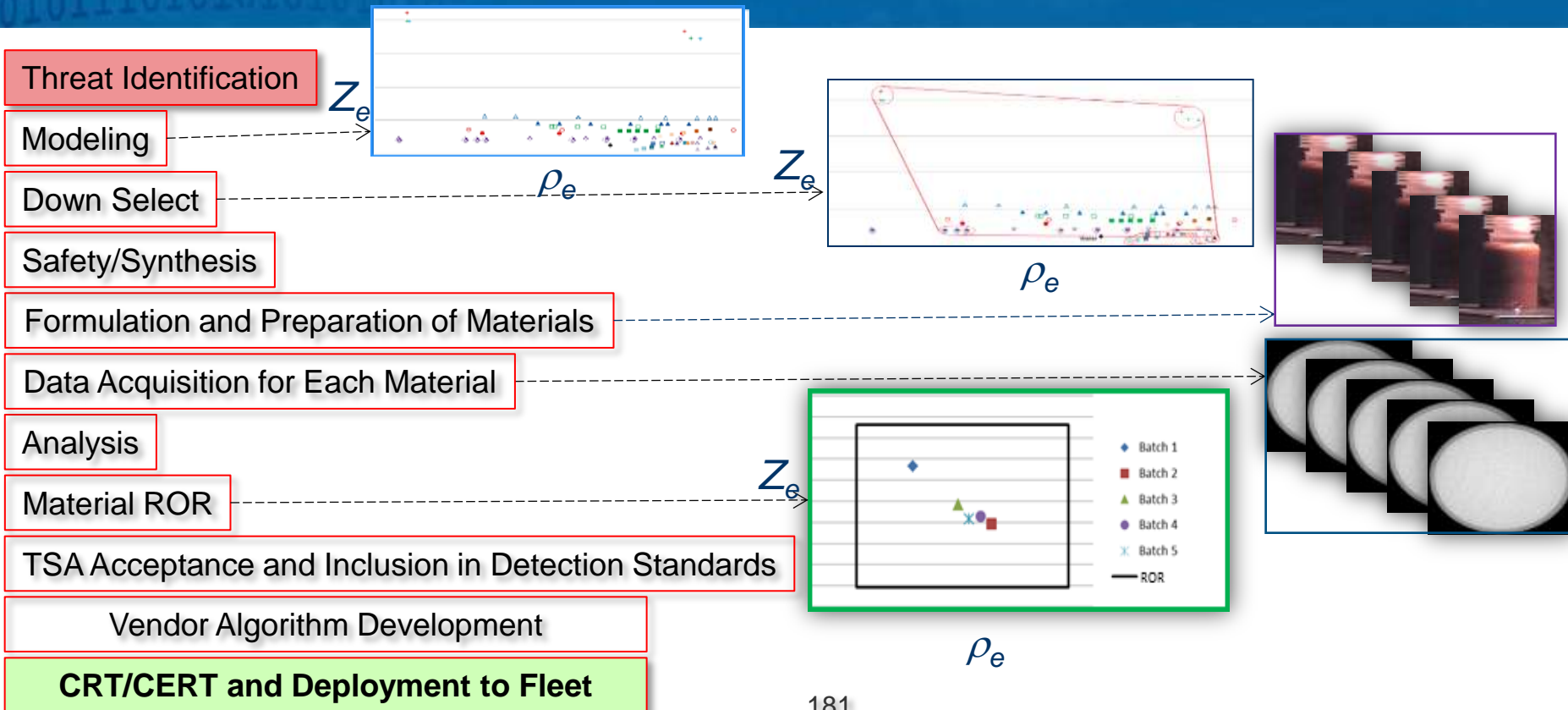
- Identifies current and emerging threats at home and abroad through various intel sources (I&A, FBI, Intelligence reports) and other characteristics such as ease to manufacture and availability of precursors.
- Identifies capability gaps and defines interagency requirements.
- Facilitates collaboration and consolidation of efforts that support operationally relevant technology solutions.



• Shares identified technologies, capabilities and capability gaps with Interagency and international partners.

*The HME threat spectrum involves a wide variety subject areas and diverse but interdependent stakeholders committed to meeting the challenge.*

# Data Collection Process



# HME Laboratory Capabilities

*Three test facilities to evaluate the performance and suitability of explosive threat detection equipment.*

- **Transportation Security Lab (TSL)** – USG-operated lab dedicated to screening technology T&E, readiness assistance, assessment of system vulnerabilities, and excursion testing
- **Tyndall Reactive Materials Group (TRMG)** - Synthesis of full threat weight explosive compounds for DHS S&T Data Collection Efforts; rapid response assessments in support of enhanced detection equipment and algorithm deployment; explosive equivalency; supports DT&E and has range up to 1,000 lbs. Net Explosive Weight
- **TEDAC IED and Synthesis Center Detection Technology Center (TIEDS DeTeC)** - Analysis of emerging threats, synthesis and physical characterization, and testing of HMEs in a variety of experimental scenarios; increased throughput of HME Data Collection Efforts

• **DOE Laboratories** – LLNL and LANL conduct threat prioritization research. Region of



# **DIGITALIZATION & AVIATION SECURITY**

**ICAO Global AVSEC Symposium 2017**

12 – 14 September 2017

Montreal, Canada



**LAM•LHA**

SECURITY INNOVATION



# OUT-INNOVATING THE ADVERSARY

Recent advancements in technology provide us  
an unprecedented opportunity to find the needle  
in the haystack.



VS

**NETFLIX**

GARTNER IT GLOSSARY

# DIGITALIZATION

The use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business.

# HOW WILL DIGITALIZATION ENHANCE DETECTION?

# BETTER SCREENING OF PEOPLE & THINGS

- Networking & Standardization (CIP & STIP) – allowing real-time & centralized analysis
- Machine Learning – leveraging data to enhance detection
- Automation – re-focusing the role of the screening officer



# CONTINUOUS OPERATIONAL IMPROVEMENT

- Forecasting & Planning
- Staffing & Scheduling
- Operations Mgt. (# pax/officer)
- Tech Evolution (e.g. optimizely)



# RISK-BASED DECISION-MAKING

- More robust risk analysis
- Risk-based passenger/belongings screening
- Enhanced pre-screening
- Integration of processes/seamless travel
- Regulatory evolution





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# SECURITY PROCESSES AND TECHNOLOGICAL INNOVATIONS

## Session 4

