



Department
for Transport

UK Perspectives on Checkpoint Screening

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What / How / And...?

- ▶ Policy and regulation informed by research into the checkpoint screening process / technology – *Our Role*
- ▶ **What?** Advent of new screening technologies and methodologies presents opportunities to increase threat detection whilst enhancing facilitation levels.
- ▶ **How?** DfT's research programme and work with UK airports to understand the threat and develop concepts of operation for emerging technologies and processes.
- ▶ **And...?**
 - ▶ Will allow the UK to meet the challenges of ever rising passenger numbers.
 - ▶ Address emerging threats and better understand existing threats.



UK Airports – Context

- ▶ **6 airports >10 MPAX per year** (Cat A)
- ▶ **11 airports 2-10 MPAX per year** (Cat B)
- ▶ **17 airports <2 MPAX per year** (Cat C)
 - ▶ *(plus 21 smaller passenger carrying aerodromes)*

- ▶ ~450 Cabin Baggage X-ray machines
- ▶ ~15,000,000 screened images per month

- ▶ **~20% increase in passenger volumes between 2010-2015**





Cabin Baggage Screening Research Programme

- ▶ Next generation cabin baggage screening
 - ▶ CIP –
 - *Centralised Image Processing*
 - ▶ CTI TIP –
 - *Combined Threat Image – Threat Image Projection*
 - ▶ EDS-CB –
 - *Explosives Detection System – Cabin Baggage*
- ▶ Training and assessment.
 - ▶ National X-ray Competency Test
- ▶ Security Scanners

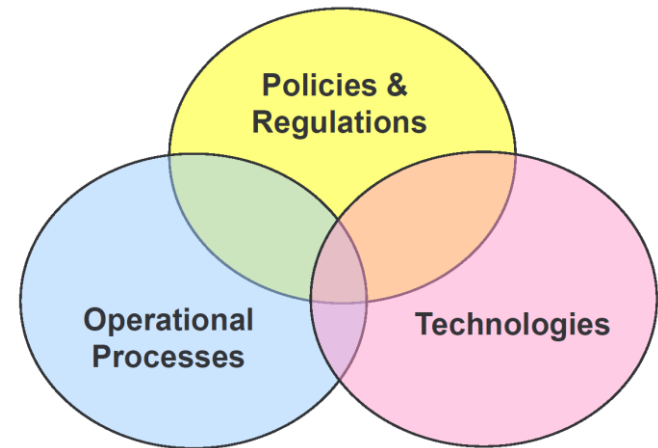




Next Generation Cabin Baggage Screening

▶ Next Generation Cabin Baggage Screening includes the:

- ▶ **Policies and Regulations;**
- ▶ **Operational Processes;** and
- ▶ **Technologies**



▶ Cabin baggage screening over the next ~decade and address 4 key drivers for change and improvement:

Threat
Environment

EDS Standards and
New Equipment

Asset Replacement
Cycles

Increasing
Passenger Volumes



Airport collaboration

- ▶ Established an Airports Cabin Baggage Working Group (CBWG) to:
 - ▶ Provide a forum to discuss issues around current and future cabin baggage screening arrangements.
 - ▶ Provide information and direction on the introduction of next generation cabin baggage screening equipment, such as EDS-CB.
 - ▶ Determine the need, or otherwise, for regulatory requirements and / or guidance on equipment operation and processes.



What is the outcome we are aiming to achieve?

- ▶ To significantly improve
 - ➔ **Step change** (e.g. get ahead of the bad guy)
- ▶ ...the probability of detection
 - ➔ **Includes all cabin baggage tools** (e.g. EDS-CB, TIP, image quality, 3D image training)
- ▶ ...for explosives and other dangerous prohibited items in cabin baggage
 - ➔ **Not just EDS** (e.g. ETD, *shape and weapon recognition?*)
- ▶ ...that enables enhanced facilitation levels
 - ➔ **Improved security and improved facilitation** (e.g. laptops and LAGS in bags)



Explosives Detection Systems – Cabin Baggage (EDS-CB)

- ▶ Regulation bringing in EDS-CB.
- ▶ Potential benefits for both Security and Facilitation.
- ▶ Laptops and LAGS* in-bag?
- ▶ What is the best position for UK airports?

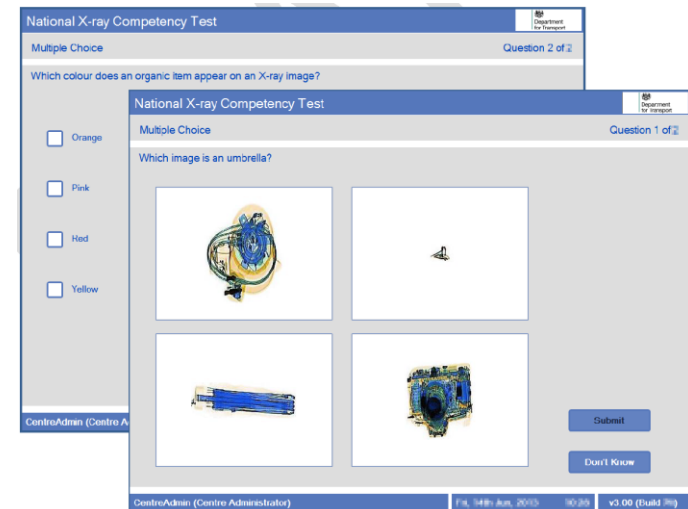
	Security		Concept of Operation (CONOP)	
	Solid Explosives Detection	Liquid Explosives Detection	Large Electronics can remain in bags	LAGs can remain in bags
C1	Yes	No	No	No
C2	Yes	No	Yes	No
C3	Yes	Yes	Yes	Yes
C4	Yes (enhanced)	Yes (enhanced)	Yes	Yes

**Liquids, Aerosols and Gels*



EDS-CB – Training and assessment?

- ▶ Review of UK National X-ray Competency Test (NXCT) underway.
 - ▶ Cabin Baggage, *but also Hold Baggage and Cargo / Mail*
- ▶ Account for new X-ray screening methodologies allied to EDS-CB
 - ▶ **3D / Computed Tomography / Multiview X-ray**
- ▶ Current test structure – Still appropriate for EDS-CB and CIP?
 - ▶ Mouse operation confirmation
 - ▶ Multiple choice
 - Benign item image ID
 - Questions on X-ray operation.
 - ▶ Find the benign item
 - ▶ Threat detection images
 - ▶ *Trial questions (non-assessed)*





Centralised Image Processing – Opportunities and Challenges

- ▶ CIP currently used at 5 UK airports – not regulated
 - ▶ *Currently viewed as enabling technology*
 - ▶ *Does it impact security?*
- ▶ Work underway to better understand the challenges of CIP, including:
 - ▶ End-to-end study of CIP, from tray return hardware to screening room
 - ▶ Understanding where responsibility for TIP lies.
 - ▶ Data integrity / time lag.

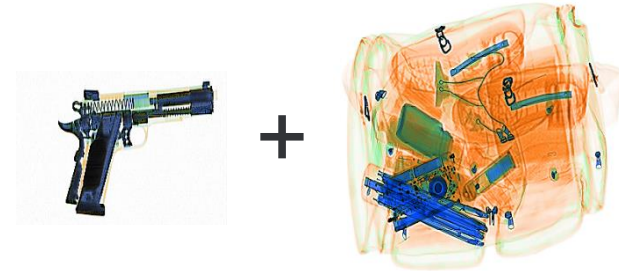


- ▶ Human Factors
 - ▶ Dedicated screeners?
 - ▶ Time on Task?



Combined Threat Image TIP

- ▶ One of the opportunities of CIP is the use of CTI TIP.
- ▶ UK has single FTI library at present
 - ▶ Allows national reporting programme and read across
- ▶ Airport specific challenges with CTI:
 - ▶ Trays? *Angles, tray wear, advertising campaigns...?*
 - ▶ Photographs in CIP? *Lighting – tray issues*
 - ▶ **How do we account for these factors whilst maintaining library quality and airport read across?**
- ▶ UK developing framework and guidance on CTI
 - ▶ *To deliver end of FY*





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Other airport collaboration – Security Scanners Working Group

- ▶ **21 UK airports now using SSc**
 - ▶ Primary
 - ▶ Secondary
 - ▶ Throughput informed by operational analysis modelling
- ▶ New covert test piece – supported by testing.
- ▶ UK “preferred algorithms” supported by operational data
- ▶ In-airport equipment routine testing protocol





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Many thanks for your attention!

Questions



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