



Border Force

# Operational challenges with Automated Detection

## The UK Perspective

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### SECURITY

Protect the UK’s physical and ideological border by detecting, deterring, and disrupting serious and organised crime, terrorism, harm and threats to people, businesses, health, and the environment.

### PROSPERITY

Facilitate and promote the UK’s growth and prosperity by enhancing international trade from businesses of all sizes, while effectively collecting the revenue owed to the government.

### EFFICIENCY

Adapt to the challenges of a changing world, by enabling the increasing stream of legitimate movement (people and trade), while safeguarding vulnerable people and preventing abuse of the system.

### Each year Border Force processes;

- Over 383 million tonnes of freight and over 21 million passengers via our 120+ seaports.
- Over 2.5 million tonnes of freight and over 255 million passengers via our 40+ airports
- Over 1.3 million tonnes of freight and over 22 million passengers via our rail ports (Channel Tunnel and Eurostar respectively)

As such, we must be resilient, innovative and capable of responding in an agile manner to major events and emerging trends.

We are therefore exploring innovative ideas, innovative technology, innovative ways of working and the transformational changes required for these. <sup>2</sup>

# Our Operational Challenge

**\* HIGH VOLUMES \* HIGH VELOCITY \* EVOLVING THREATS \* INSIDER THREATS**



Our data needs remain unharnessed/underutilised.  
Our targets (goods and people) are inaccurate and inadequate.  
Our screening/scanning measures are insufficient.  
Our processing speed is inadequate and unsatisfactory.



Our current search ratio and frequency are inadequate.  
Our detections and finds (hit rate) are very low.  
Our seizure and/or refusal rates are inadequate and ineffective.  
Our revenue from customs breaches is inconsistent and deficient.



Our officers are not wholly proficient nor equipped.  
Our current pay packages are not competitive.  
Our recruitment campaigns are not sustainable solutions.  
Our activities and processes are monotonous and lack automation.



# Challenges with Automated Detection



## 1. People

- Officer Skills & Capability
- Resistance to Change

## 2. Processes

- Identifying the process to automate
- Regulatory Compliance

## 3. Data

- Data Availability & Quality
- Integration with existing/other Systems

## 4. Technology

- Scalability/Operational feasibility
- Technological/Security risks

## 5. Finance

- Funding
- Return on Investment

# What are we doing?

## The road to Automation in the Freight Scanning environment.

1. Border Force's Detection Capability directorate has identified maritime freight scanning as the preliminary operational process to automate, as it offers the largest potential impact for "our mandate" and aligns with the interest of our partners.
2. Border Force has commenced a programme to network all its maritime freight scanners for the collation of all scan data centrally, accessible for processing (remotely and locally) via a bespoke application – ScanApp.
3. **Border Force has commenced a pilot project (the Xi4Ai Project) to collate, convert into UFF2.0 and curate historical maritime freight scan data. This project will also involve algorithm development to evaluate the quality of the data.**
4. Border Force will commission a programme to fully develop and deploy Artificial Intelligence capabilities within its maritime freight scanning operations. This work will involve our partners from other customs organisations and could involve joint working arrangements.
5. Border Force will commission further transformational programmes to support full Automation of maritime freight scanning, which could include changes to our ways of working and the role of a Border Force Officer in the future.
6. Border will take the learnings from these programmes and replicate similar automation and transformation programmes across our operational estate to get to the border of the future.

## The XI4AI Project: X-Ray Imagery for Artificial Intelligence

### Aim:

To centrally collate, process, index and curate historical x-ray image data, for better data exploitation and the development of AI algorithms.

This project will also explore pilots to develop algorithms to satisfy specific Border Force Use Cases.

### Approach:

Border Force will be reaching out to engage the AI industry in the coming weeks and working with our colleagues in ACE (Accelerated Capability Environment) we aim to develop a commission to address these Use Cases.



Engage the AI Industry and work with our Digital & Data colleagues to collate, process and curate the images.

Develop a secured cloud-based data repository of the collated x-ray images for access to AI Experts.

Secure AI Experts to develop algorithms and deployment applications in ScanApp.

# How can you help us?

1

What areas of UK  
Customs need enhanced  
technologies?

Every area of our organisation!  
(Refer back to Slide 3)

2

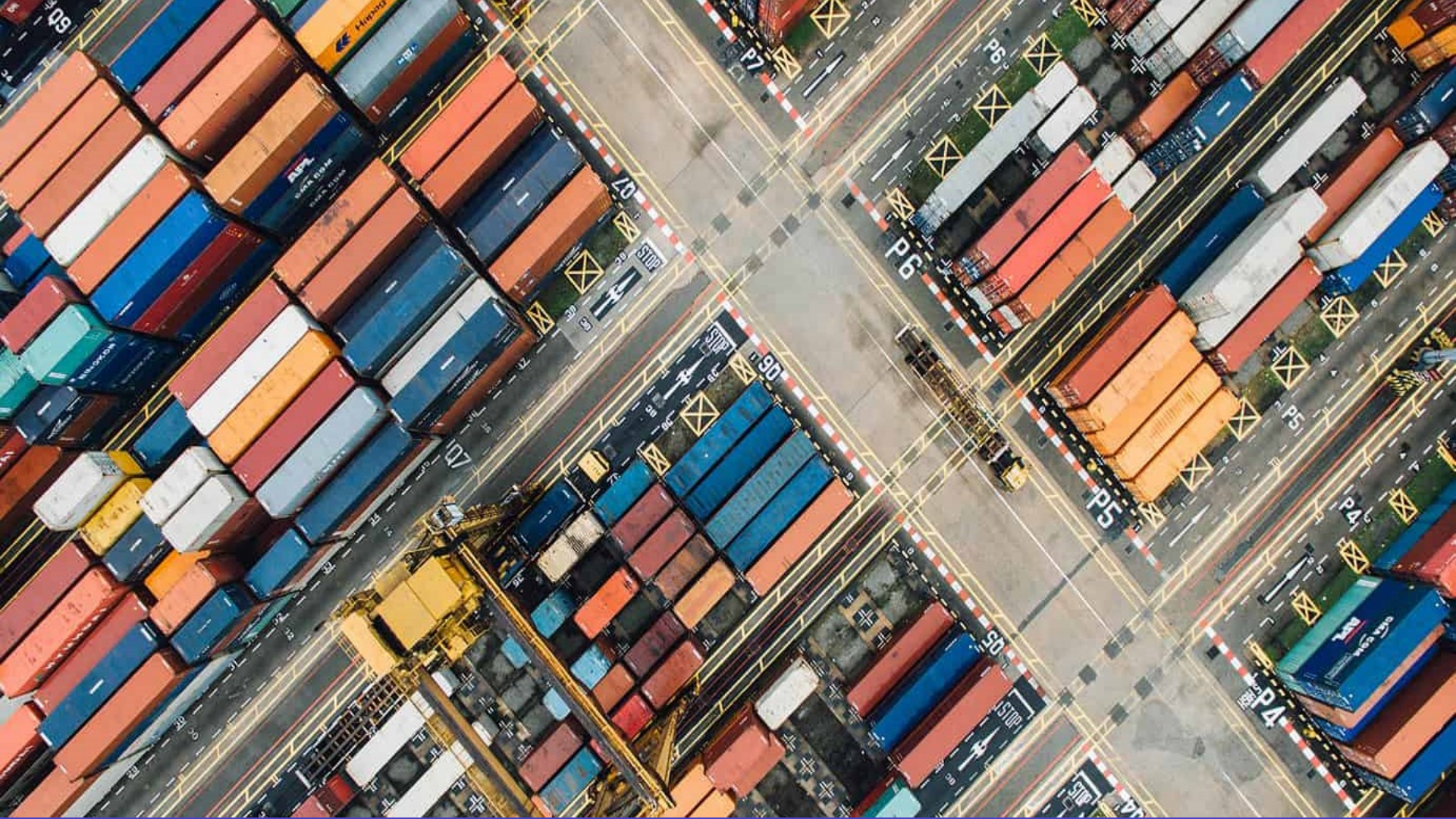
How can inventors and  
industry learn more about  
these enhanced technologies  
and funding mechanisms?

1. Explore government funded innovation agencies (The Department for Science, Innovation & Technology is good starting point).
2. Engage departmental teams on Innovation and Research.
3. Engage your potential clients (they usually know the opportunities going).

3

What advice do you have for  
inventors and industry?

1. Engage customs organisations to better understand the operational environments.
2. Be open to trials and proof of concepts with customs organisations.
3. Be prepared to customise/remodel your solution for each customs organisation.
4. Check your solution for scalability and other challenges in operational deployment.
5. Present flexible commercial models (Upfront costs vs Licensing/Subscription costs).



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**Thank you**