

BAG-INTEL

Navigating Ethical Challenges in AI-Powered Baggage Screening: BAG-INTEL's Approach

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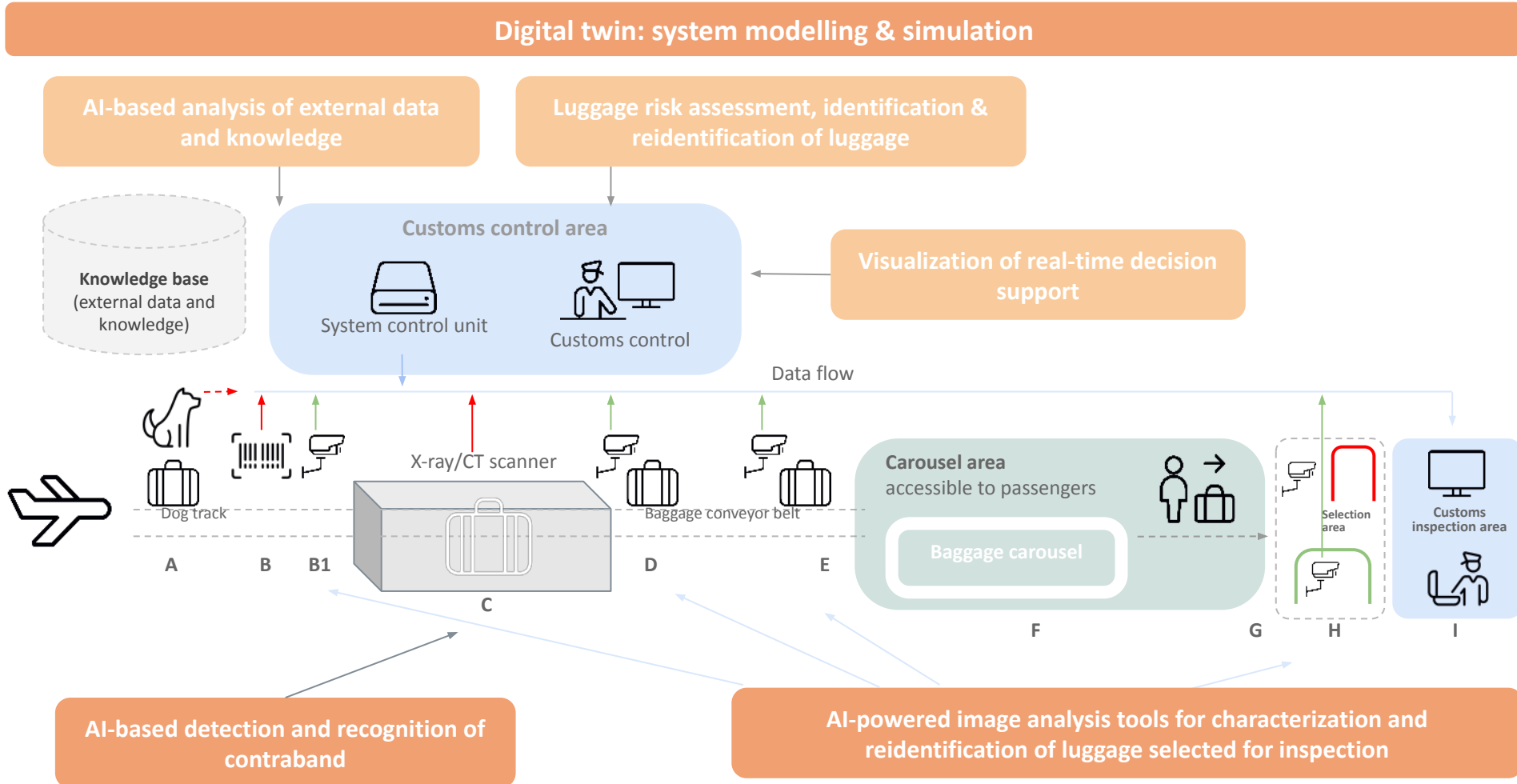
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**Ethical and Societal Implications of Security
Technologies in Border Management**

20 Nov 2024, online

Project operational scenario

CUSTOMS CONTROL OF INCOMING PASSENGER BAGGAGE AT INTERNATIONAL AIRPORTS



Project operational scenario

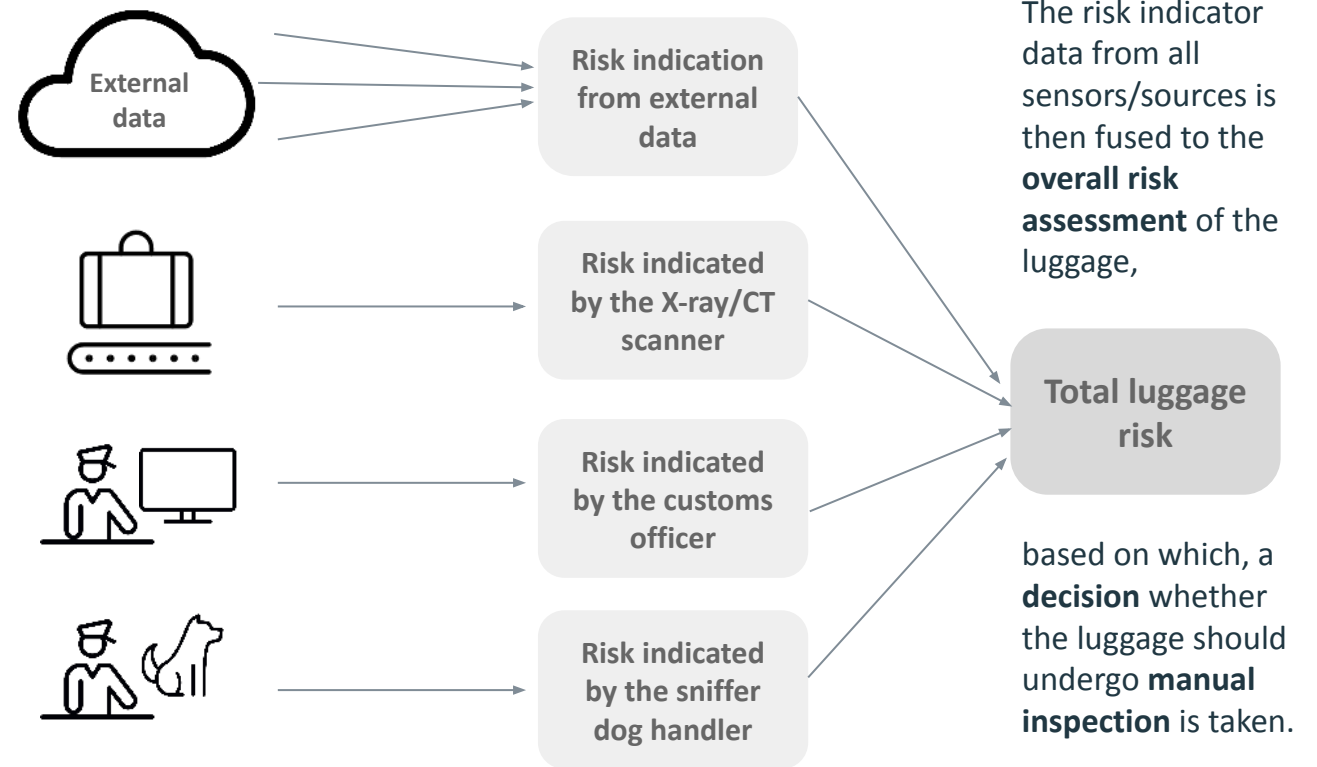
CUSTOMS CONTROL OF INCOMING PASSENGER BAGGAGE AT INTERNATIONAL AIRPORTS



Upon flight arrival, when the luggage is unloaded and placed on the baggage conveyor belt, the **customs risk** of each piece of luggage is **assessed using AI-supported tools** under the supervision of the customs control officer(s).

The applied **risk indicators** arise from 4 kinds of **sensors/sources**:

- **External data and knowledge**, such as the Passenger Name Record and the databases of Law Enforcement Agencies, where suspicious travel patterns and links to organized crime are recorded.
- **An X-ray/CT scanner** with absorption sensing and object recognition in the scanning image, which will be trained to detect/recognize various kinds of contraband, such as drugs, cigarettes, currency, etc.
- **The customs control officer** who may detect suspicious content that has not been detected and flagged by the scanner itself.
- **Dog handler input**, if the customs apply a sniffer-dog at the dog track before the X-ray/CT scanner.



Current solutions and practices

- The security scanning of outgoing luggage is well-developed but **the customs scanning of incoming luggage is not developed to its full potential.**
- Utilization of external data for the risk assessment is, in general, **not exploited to its full potential** for the customs control.
- While some airports apply radio-frequency identification (RFID) tagging for the customs reidentification of luggage, this method has several **disadvantages**:
 - **the smuggler may find and remove the tag** upon collecting the luggage and before entering the customs area at the exit of the baggage delivery space
 - **tags must be manually placed in/on the luggage and then removed** before the traveller leaves the customs area following the inspection of their luggage
 - it has a relatively **high operation and maintenance cost**
 - it comes with an **environmental impact** due to production and disposal of tags



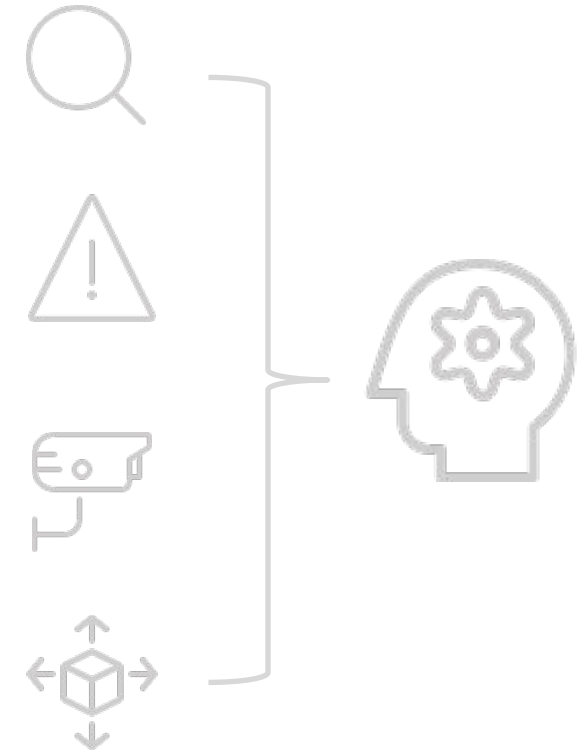
Advancing the state of the art with BAG-INTEL

Implementing the BAG-INTEL solution with its advanced features and capabilities, including:

- AI-powered functionality for enhanced detection of contraband in X-ray scanning of luggage,
- AI-powered risk assessment based on the analysis of data from external sources (Passenger Name Record and Law Enforcement Agencies),
- AI-camera-based end-to-end reidentification of luggage, and
- digital twin for system visualization and performance optimization,

will lead to greater effectiveness and efficiency of the customs control processes!

- ✓ The cases of manual inspection not leading to finding contraband will decrease as **only luggage containing contraband will be inspected manually.**
- ✓ More contraband will be detected as **more luggages containing contraband will be flagged.**
- ✓ Besides, the **AI-camera-based reidentification is non-intrusive**, avoiding all the disadvantages of alternative solutions.



Ethical issues addressed by BAG-INTEL



- Involvement of humans



- Use of data and data protection



- Involvement of animals



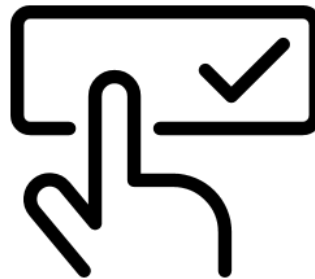
- Use of Artificial Intelligence

Involvement of humans

- Pilots and training at airports
 - Use actors
 - Signals at the airport and a second itinerary

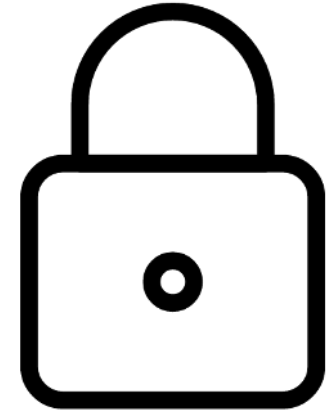
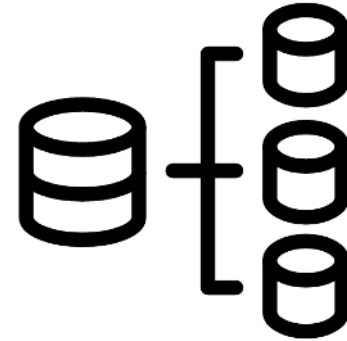


- Stakeholders
 - Informed consent form
 - Information form



Use of data and data protection

- Pilots and training at airports
- Photos (bags but with blurred persons)
- PNR and SIS data (generated data)
- Real data Sandbox
- Minimization
- Legal problem (GDPR, Directive 2016/680, PNR, and SIS)



Involvement of animals (dogs)

- Numbers and species of animals, and purpose of the experiment(s)
- Animal procurement and purpose breeding
- Training certificates/licences for staff
- Authorisation for animal experiments (and corresponding ethics approval, if available) covering research scope, duration, and location
- Personal history files (NHPs, dogs, cats)
- Animal welfare procedures (including care and accommodation, recognizing suffering and setting limits, reuse/continued use, humane endpoints, and euthanasia)
- Adherence to the 3R's: replacement, reduction, refinement



The EU AI ACT

- A description of the **deployer's processes** in which the high-risk AI system will be used in line with its intended purpose
- A description of the **period of time** within which, and the **frequency** with which, each high-risk AI system is intended to be used
- The categories of **natural persons and groups likely to be affected** by its use in the specific context
- The **specific risks of harm** likely to have an impact on the categories of natural persons or groups of persons identified pursuant to point (c) of this paragraph, taking into account the information given by the provider pursuant to Article 13
- A description of the implementation of human oversight measures, according to the instructions for use

The HLEG ethics guidelines

- Human agency and oversight
- Technical robustness and safety
- Privacy and data governance
- Transparency
- Diversity non-discrimination and fairness
- Societal and environmental wellbeing
- Accountability



Reach out to BAG-INTEL >



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