Press release

BAG-INTEL: developing a highly effective and efficient AI-based solution to support customs authorities in the detection of contraband in baggage

BAG-INTEL, a new Horizon Europe project, aims to develop a solution to support the customs teams in tackling the challenge - given the ever-growing volume of air travellers - of re-identifying detected suspicious pieces of luggage, for manual inspection. By addressing the whole process and infusing it with new technology, the effectiveness and efficiency of baggage customs control will increase, without the need to increase the customs staff involved in the process.

The baggage customs control systems at airports detect and process cases of baggage containing contraband, i.e., goods that are illegal to import or whose import failed to be declared for customs clearance, such as drugs, tobacco, endangered species, raw food material, or currency. Depending on the risk assessment of a particular arrival, the baggage customs control staff may decide to run all baggage from the arriving flight through non-intrusive screening equipment (X-ray/CT), which helps them to identify suspicious luggage, which is then considered suitable for manual inspection. The main challenge for the customs operation is to re-identify that luggage after the passenger has picked it up from the carousel and proceeded toward the exit. And with the increase in the volume of passengers arriving by air at inland border airports, the need for increased efficiency of baggage customs control continues to grow.

BAG-INTEL's envisioned solution to support the customs teams in efficiently tackling such challenges will involve high-resolution cameras and robust AI, which will provide an end-to-end continuous reidentification of the luggage. The solution will help to ensure that all baggage is scanned and that the suspicious luggage is kept track of so that the customs staff can easily find it and manually inspect it.

To further improve the effectiveness and efficiency of customs control, the project will—in addition to the re-identification solution—provide new, AI-supported functionalities improved for the customs risk assessment of the luggage. BAG-INTEL will include new, dedicated X-ray absorption analysis and object recognition, as well as an analysis of relevant external data. Furthermore, the project will provide a digital twin for visualising, testing, and optimising the developed solution for the operational context of airports. All such aspects will be explored via 3 in-real-life use cases of different entity (the Billund Airport in Denmark, The Makedonia Airport in Thessaloniki, Greece, and the Adolfo Suárez Madrid–Barajas Airport, Madrid, Spain) that will support the end-users in

identifying the setup with the best performance under specific conditions. Finally, BAG-INTEL will also develop a sustainable business model and deployment plan for the Pan-European uptake of the project results.

The team behind BAG-INTEL

BAG-INTEL, a 3-year Horizon Europe Research and Innovation Action, is powered by a multidisciplinary consortium of 24 partners from 8 European countries, including industrial players, consultancy and advisory firms, universities and research organizations, ministries, customs and tax and civil authorities: [Legind Technologies A/S](#) (Denmark), [Commissariat à l'énergie atomique et aux énergies alternatives](#) (France), [Universidad de Granada](#) (Spain), [STAM S.r.l.](#) (Italy), [Conceptivity](#) (Switzerland), [Netcompany-Intrasoft](#) (Luxembourg), [Martel GmbH](#) (Switzerland), [DBC Diadikasia](#) (Greece), [PSI Logistics GmbH](#) (Germany), [Institute of Communication and Computer Systems](#) (Greece), [National Institute of Applied Sciences of Rouen](#) (France), [Smiths Detection Germany GmbH](#) (Germany), [EXUS](#) (Greece), [Ingeniería de Sistemas para la Defensa de España](#) (Spain), [University of Applied Sciences for Public Administration and Legal Affairs in Bavaria](#) (Germany), [The Center for Security Studies - KEMEA](#) (Greece), [Fraport Regional Airports of Greece Management Company S.A.](#) (Greece), [Independent Authority for Public Revenue - IAPR](#) (Greece), [Estonian Tax and Customs Board](#) (Estonia), [The Danish Customs Agency](#) (Denmark), [Spanish Tax Agency](#) (Spain), [Hellenic Police](#) (Greece), [Guardia Civil](#) (Spain), [Customs and Monopolies Agency](#) (Italy).

Each BAG-INTEL partner carries the background knowledge and has documented expertise on all fields that are paramount to the success of the project and the sustainability of its achievements.

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