TU Delft – Innovation Airport

Shaping the future of airports

The Aerospace industry is facing multiple challenges

Until recently, a continuous growth in travel demand was expected in the Aerospace Industry. The COVID-19 pandemic forced the air travel industry to a near standstill. In addition to the road to recovery, the Aerospace Industry should strongly focus on challenges that already existed before the pandemic. Minimizing the negative impact and moving to sustainable aviation are key areas to address. Changes to the current way of travelling are required; new technologies, travel concepts, and innovations need to be embraced.

Recovering travel demand

Minimizing negative impact: noise & emissions

Adoption of emerging technologies & innovations

Moving to sustainable aviation

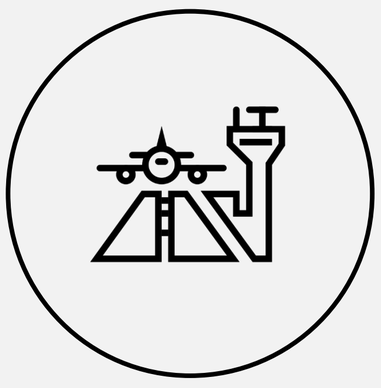
Innovation Airport

Airports are a key element in enabling innovation in air transport, which is why this is focus of the Innovation Airport initiative. Innovation Airport is a TU Delft-wide initiative, aimed at creating and developing innovative (concepts for) airports in close collaboration with industry partners. Since all faculties already significantly contribute to airport research, there is a sizable opportunity for the TU Delft to play a key role in changing the future of airports. The focus should be on research and developments at a ‘system level’, rather than a step-by-step approach.

Our Goals

Nurture an **airport research profile** with ambitious, innovative and inter-disciplinary projects

Facilitate a **cooperation and networking platform**, with a wide pool of stakeholders



Establish **Living Lab(**s) to exchange knowledge, test and demonstrate products, services and technologies

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Innovation Airport

Airport Technology Lab at RTHA

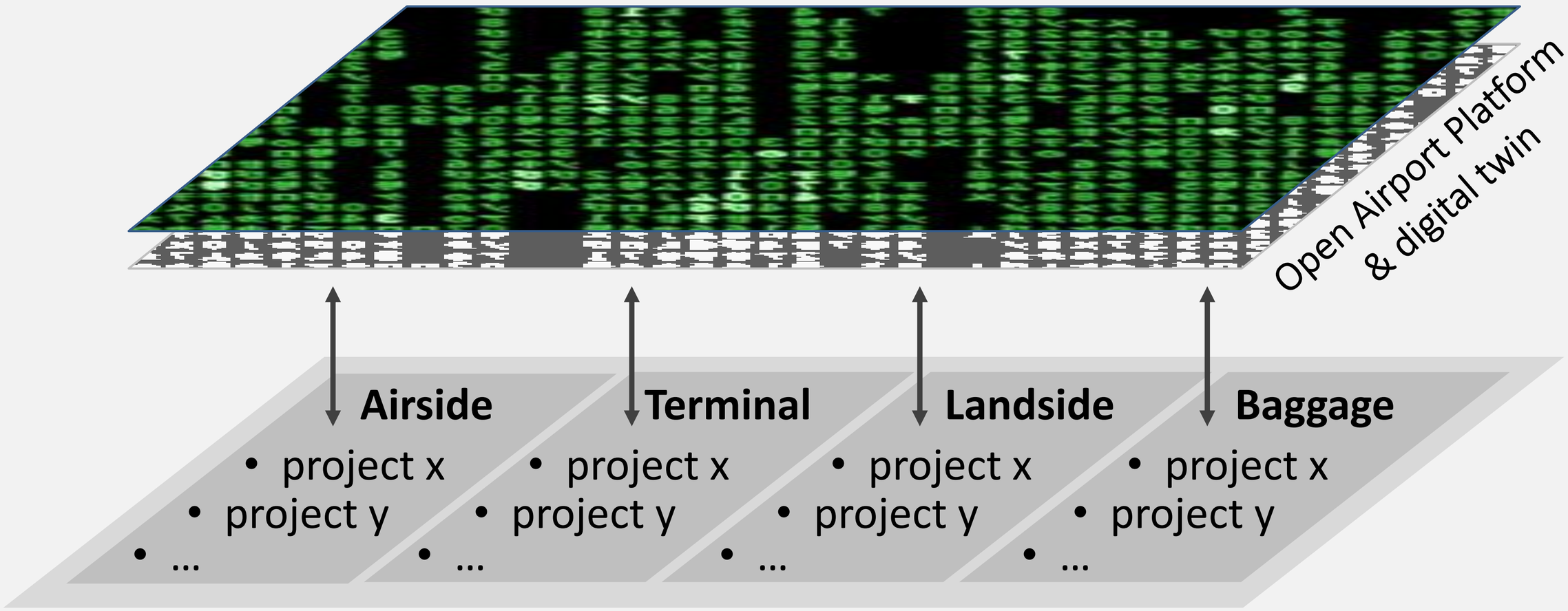
TU Delft works closely together with multiple partners, such as RHIA, Rotterdam the Hague Airport (RTHA), the Municipality of Rotterdam, various businesses and knowledge institutes on creating the Airport Technology Lab (ATL) at RTHA. The ATL is funded by Kansen voor West II and the European Regional Development Fund, and offers a unique test & demonstration environment, where:

- industry and universities get the opportunity to develop, test & demonstrate data-related technologies, products and services.
- multiple stakeholders exchange knowledge, and employees & students are educated/familiarized with the latest airport developments.

Impact

The Airport Technology Lab aims to accelerate data-related airport innovations, focusing on amongst others improvements in safety, capacity, efficiency, resilience and passenger comfort, while adding economical & societal value to the region.

Visualization of the Airport Technology Lab*



Test environment

The Airport Technology Lab is unique, since it covers the “full airport system”. Multiple innovation projects will be carried out in the four physical R&D areas (airside, terminal, landside & baggage), and the “Open Airport Platform”. By using this platform partners can get access to and work with airport data, and evaluate the impact of innovations on a system-level.

* Source: figure adjusted from the EFRO project proposal

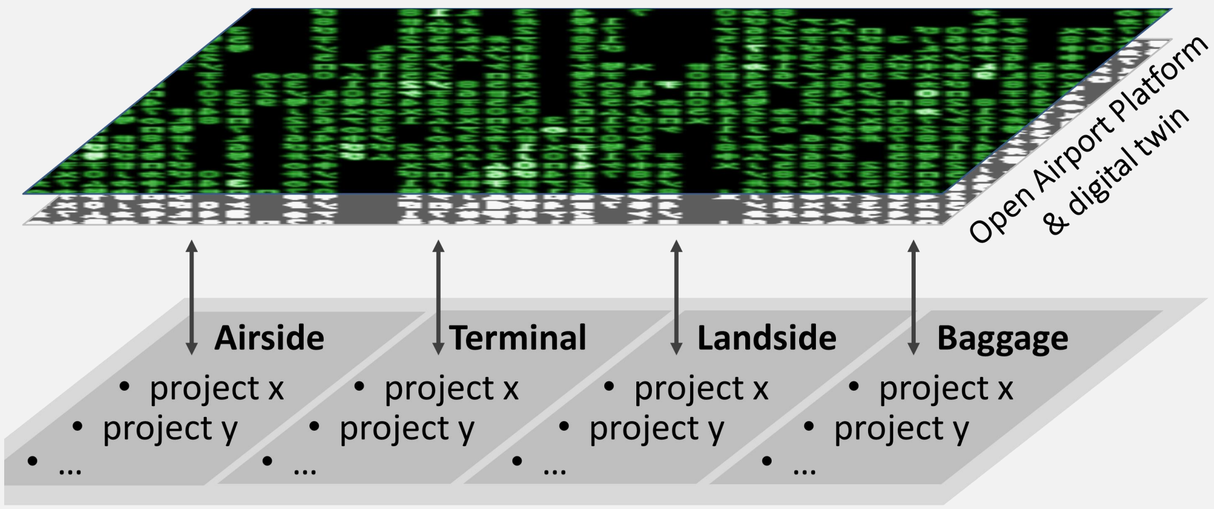
DIMI - Innovation Airport

Europese Unie
Europees Fonds voor Regionale Ontwikkeling

G4P4 Kansen voor West II

Recent projects at Rotterdam The Hague Airport

Airport Technology Lab



TU Delft works closely together with multiple partners, such as RHIA, Rotterdam the Hague Airport (RTHA), the Municipality of Rotterdam, various businesses and knowledge institutes on creating the Airport Technology Lab (ATL): a fieldlab focussing on data-related innovations.

The ATL is funded by Kansen voor West II and the European Regional Development Fund. TU Delft's projects focus on radar technology, agent-based modeling to improve terminal and baggage processes, and machine learning to improve airside planning.

Agent-based Modelling of Terminal and Baggage Processes

This research cluster aims to analyze and improve efficiency, security, and resilience of airport terminal & baggage operations. Within the projects relations between these factors are analyzed. A detailed, realistic agent-based model is being developed and scalable simulations are performed in a developed modular environment. To validate and extend the models, multiple real-life tests are conducted.

The projects are done in close collaboration with the airport, security- and baggage companies.

Emergency Relief Airport

The 'Emergency Relief Airport' research program aims to support the airports' role in humanitarian disasters by improving the logistics flow at the airport, and by strengthening the coordination role at the On-Site Operations Coordination Centre (OSOCC). This is done by using 1) gaming, modelling and simulation techniques, and 2) information management & technologies. More information can be found here & here.

EcoWall

The Eco-wall aims to improve the ground-based environmental impact of RTHA. It is a multifunctional structure that includes environmental barriers, buildings, vegetation, transport solutions and dedicated land-use planning.

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