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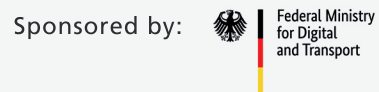
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Project Introduction

The Digital Test Bed Air Cargo (DTAC) researches the basis for the development and operation of digital applications and solutions in air cargo. The plan is to develop and test digitalization solutions/standards in air cargo on a neutral, cross-location basis, together with the stakeholders and their respective processes. To this end, solutions will be implemented, further developed, and demonstrated at various German airport locations as part of the digital test field.

In total, the DTAC comprises three thematic areas in six subprojects.

1 Standardized data exchange between all players in the air freight transport chain.

2 Automation and autonomization in dispositive handling and transport processes of air freight.

3 AI-supported optimization and forecasting applications to increase efficiency.

Duration:
September 2021 – August 2024 (36 months)

Sponsored by:

Federal Ministry
for Digital
and Transport

Consortium

2 Research Institutions

Fraunhofer
IML

FRANKFURT
UNIVERSITY
OF APPLIED SCIENCES

9 Industry Partners

Lufthansa Cargo

DB SCHENKER

SOVEREIGN
AHEAD OF TIME

LUG
aircargo handling

M

CHI
CARGO HANDLING
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Fraport

MITTELDEUTSCHE
AIRPORT HOLDING

Köln Bonn Airport

STUTTGART
AIRPORT

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DIGITAL TESTBED

AIR CARGO

Subproject 1:
Data Hub & Digital Avatar

The digital data hub (Open-Source Server Software Package) will revolutionize the digital data exchange within the air freight transport chain in the long term by means of the IATA ONE Record data standard. With the Avatar, we use this data to make informed decisions based on simulations.

Subproject Lead: Fraunhofer IML

Subproject 3:
Predictive Analytics

The foundation for intelligent and automated resource planning that uses historical data in combination with machine learning to make predictions about future scenarios. This aims to avoid bottlenecks by forecasting freight volumes more precisely and over a longer period.

Subproject Lead: Fraunhofer IML

Subproject 5:
Autonomous Outdoor Cargo Transportation

Development of optimized, efficient, effective, and safe cargo transportation on the apron with smart and autonomous equipment, real-time data for improved resource management and improved interfaces between warehouse and aircraft.

Subproject Lead:
Frankfurt University of Applied Sciences

Subproject 2:
Smart-Pouch and IoT

Development of an accepted digital cargo pouch that makes handling instructions available in real time on the store floor, generates new data sets and transmits them to the required stakeholders. The IoT concept in air cargo handling is thus demonstrated and established as a standard.

Subproject Lead:
Frankfurt University of Applied Sciences

Subproject 4:
Digital Site Logistics

Establishment of a validated logistics concept at the airport location to expand the existing service portfolio of air cargo handlers for the intelligent integrative use of existing resources and technical infrastructures (e.g. for terminal supply).

Subproject Lead: Fraunhofer IML

Subproject 6:
Autonomous Air Cargo Warehouse Handling

Reviewing the feasibility of autonomous transport processes in air cargo handling and embedding them in the overall process in response to increasing challenges from industry growth and skills shortages.

Subproject Lead: Fraunhofer IML