

Medus

Modelling and assessing the role of air transport in an integrated, intermodal transport system

Annika Paul, Bauhaus-Luftfahrt e.V.







WHY THIS PROJECT?

MOTIVATION

In the context of increasing environmental awareness, regulatory measures, capacity shortages across different modes, or the need for a more seamless and hassle-free passenger journey, the future evolution of European travelers' demand for mobility is still unknown, as well as its potential impacts on the European transport system.

The optimization and alignment of intermodal transport is therefore of utmost importance for the overall performance of the (future) European transport system, especially in regard to **providing a seamless and hassle-free journey for passengers** as well as mitigating (air) capacity constraints.



Modus OBJECTIVES

The main objective of the project is **the analysis of the performance of the overall transport** system by considering the entire door-to-door journey holistically and assessing the role of air transport within an integrated, intermodal approach.



FACTS & FIGURES

PROJECT BUDGET **1.52 M€**

EU CONTRIBUTION 0.99 M€

DURATION 30 MONTHS

01.06.2020 TO **30.11.2022** GRANT AGREEMENT

7 PARTNERS FROM 5 COUNTRIES

PROJECT COORDINATOR BAUHAUS LUFTFAHRT

WORK PROGRAMME

H2020-SESAR-2019-2

11th SESAR Innovation Days



Modus project – SESAR Innovation Days 2021



KEYWORDS

Air transport, intermodal, transport, capacity, performance, Europe, modelling









Identify

the main barriers in achieving European (air) mobility goals and how air transport can evolve by efficiently connecting information and services with other transport modes to achieve the 4 hours door-to-door goal and a seamless journey experience for passengers.



ĺΫ

Understand

in a better way how ATM and air transport can better contribute to improve passengers' intermodal journeys and how this translates into an enhanced performance of the overall transport system

Explore and model

the connection and dependence between ATM/ air transport and other transport modes, with a special focus on the interplay between short and medium air and rail connections

Future supply and demand scenarios



Scenarios

- Derived from European high-level mobility objectives, existing scenario studies as well as the work conducted within the Modus project
- Focus on particular aspects envisaged for the future, and that have the potential to significantly change the transport system
- Four scenarios
 - 1. Pre-pandemic recovery (baseline)
 - 2. European short-haul shift
 - 3. Growth with strong technological support
 - 4. Decentralised, remote and digital
- Scenarios presented in **Deliverable 3.2**



Future supply and demand scenarios





Scenario 1: Pre-pandemic recovery

- Network structures remain similar to todays
 - Implementation of innovative technologies facilitates the reduction of emissions in air transport



Scenario 2: European short-haul shift

- High share of short-haul air traffic replaced by air-rail cooperation
- High quality of transport network with HSR services on short-haul distances



Scenario 3: Growth with strong technological support

- Higher growth rates of the transport sector until 2040 than the baseline
- uptake of technological innovations to both reduce emissions and alleviate capacity shortages in air transport

Scenario 4: Decentralised, remote and digital mobility

₫~⊡	
È-À	

- Population becomes more dispersed across rural and remote regions with increased options for remote working and virtual meetings
- More decentralised air transport network, additional railway stations
- Technological innovations for regional aircraft



Future supply and demand scenarios

Scenario parameters

airports/stations*		 Transport supply Rail transport frequency* Air transport frequency* Rail supplied capacity (maximum number of carried passengers)* Air supplied capacity (maximum number of carried passengers)* Supplied capacity per class (air): First class seats, business class seats, economy class seats* Type of train used* Travel time (air or rail segment)* Share of aircraft leaving (or arriving) on time* Quality of on-board service* Monthly price index for rail transport* Level of air-rail integration and cooperation
 Mobility network Air traffic demand (passengers per city pairs) Rail traffic demand (average number of passengers) Assumed air space improvement Assumed rail network improvement City archetypes (change from current status quo) 	chnological Implementation degree of new aviation technologies Implementation degree of new rail technologies	

11th SESAR Innovation Days

Engage





Stay in touch with us Modus Project



Website : <u>https://modus-project.eu/</u>





Twitter: https://twitter.com/modus_project







www.modus-project.eu

<u>Annika.Paul@bauhaus-luftfahrt.net</u>

Thank you very much for your attention!



This project has received funding from the SESAR Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 891166.







The opinions expressed herein reflect the author's view only.

Under no circumstances shall the SESAR Joint Undertaking be responsible for any use that may be made of the information contained herein.