

Deutsches Zentrum für Luft- und Raumfahrt (DLR) German Aerospace Center

**DLR is Germany's aerospace research center
and space agency.**



Deutsches Zentrum
für Luft- und Raumfahrt e.V.
in der Helmholtz-Gemeinschaft

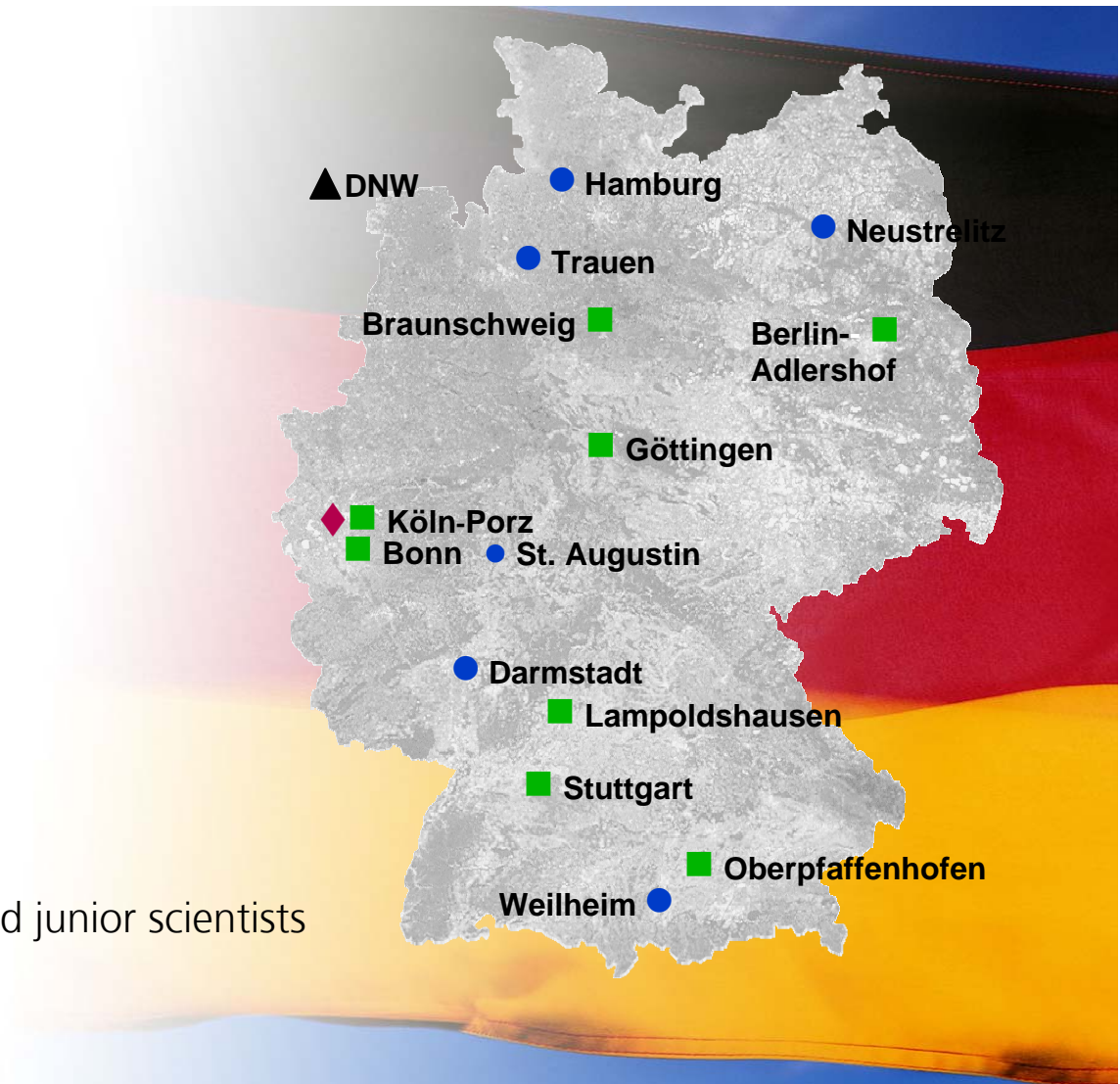
Sites and Employees

31 research institutes and scientific/technical facilities at

- 8 sites
- 4 branches
- ◆ European Transonic Wind Tunnel (ETW)
- ▲ German-Dutch Wind Tunnels (DNW)

5100 employees

- 2,300 scientists
- 500 doctoral students and junior scientists
- 100 visiting scientists





General objectives and key areas of research

Objectives

- Optimum utilization of research services for the economy and society,
- Integration of basic research and application via effective, innovative processes,
- DLR is a research partner for the scientific community and an innovation partner for the economy.

Key areas of research

Aeronautics



Astronautics



Energy



Transportation



Aeronautics

Objectives

- Improvement of aerodynamic design,
- Numeric simulation of aerodynamics and propulsion,
- Reduction of structural mass and manufacturing costs,
- Reduction of aircraft noise and emissions,
- Increasing airport and airspace capacity,
- Ensuring safety.





Air Transport and Airport Research

(Flughafenwesen und Luftverkehr)

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Research Unit "Air Transport and Airport Research"

General Objectives:

Elaborate Research Contributions to an Air Transport System, which is

- Safer
- More efficient
- More sustainable and
- More productive



Air Transport and Airport Research

Main research areas:

- Analysis and Prognosis of Airport and Airspace Capacities
- Policy and Sustainability aspects of air transportation
- Terminal-Simulation and –Management

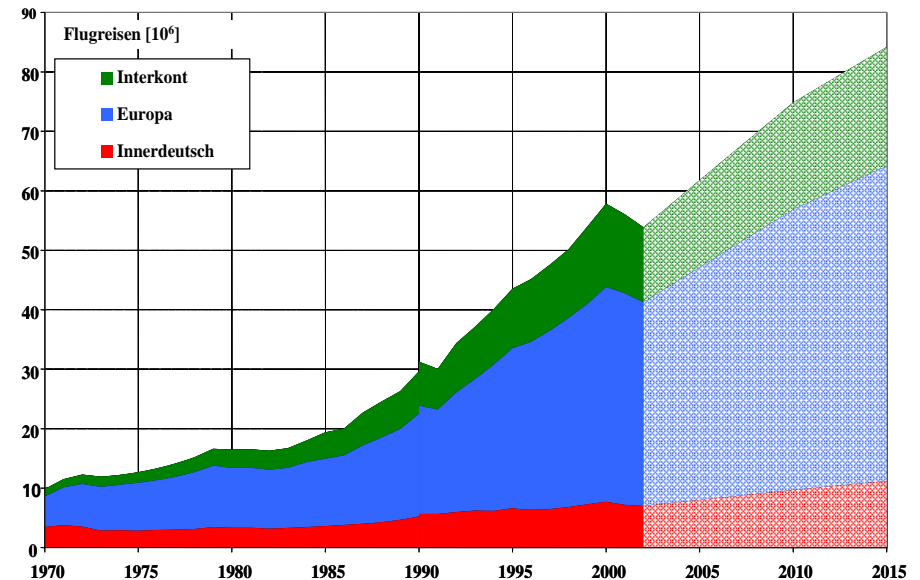




Research Agenda: Air Transport Analyses and Forecasts

Air Transport Analyses and Forecasts

- ▶ Monitoring and Analyses of Developments in Air Transport and of Influential Factors (Economy, Complementary and Competitive Modes, Travel Behavior etc.)
- ▶ Forecasts of Development in Air Transport and of Resulting Needs of Action
- ▶ Improvements of Methods for Analyzing and Forecasting of Air Transport



Bis 1990: Bundesrepublik Deutschland (einschl. West-Berlin). Ab 1990: Gebietsstand nach der Wiedervereinigung (3. Okt. 1990)

Quelle: Bis 2002: Statist. Bundesamt; 2010 u. 2015: DLR-Prognose

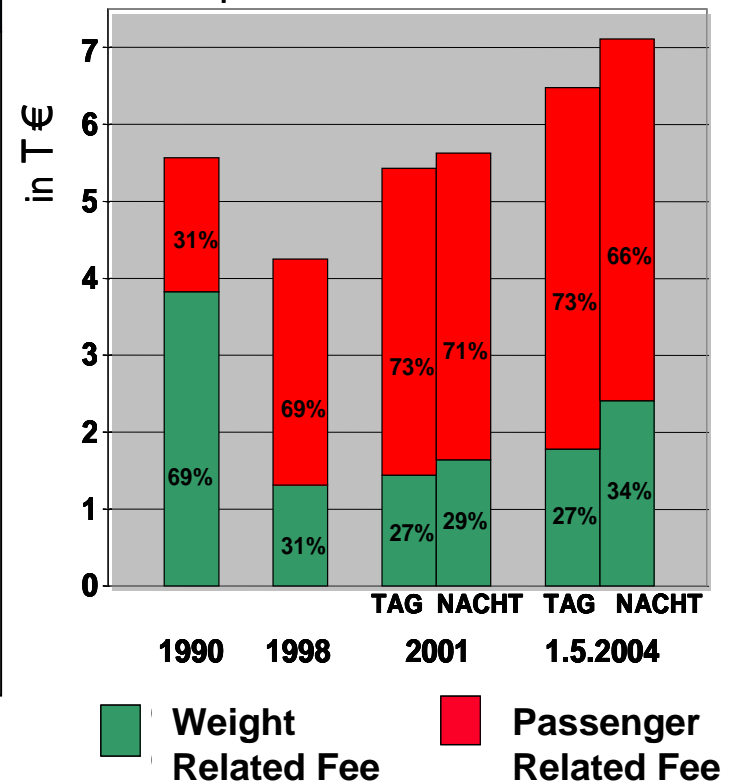


Research Agenda: Regulatory Policy Aspects of the Air Transport

Regulatory Policy Aspects of the Air Transport

- ▶ Monitoring and Analyses of Developments in the Airline and Airport Market in Particular in Competitive Issues
- ▶ Conception of Options and Governance Instruments in Transport Politics, e.g. Charges, Emission Trading
- ▶ Design of Scenarios describing Air Transport Development and Identification of future Challenges
- ▶ Monitoring on Aviation Development and Sustainability Indicators

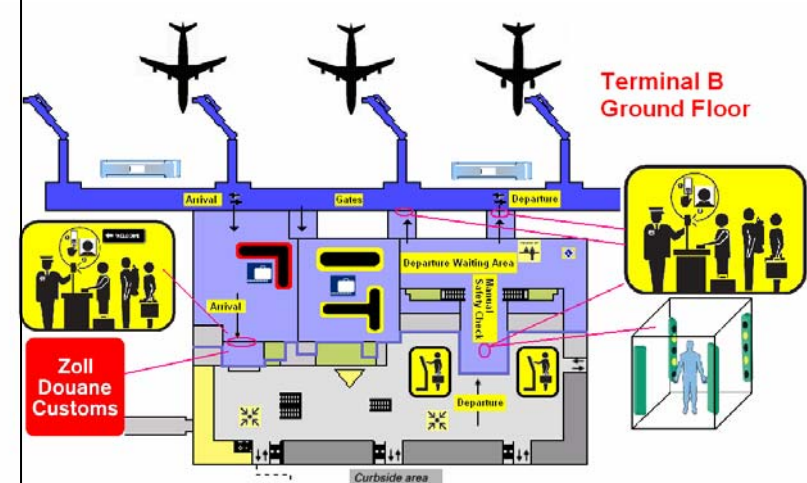
**Development of Landing Fees
e.g. B 747 – 400 in FRA**



Research Agenda: Airport Simulation und Management

Airport Simulation and Management

- ▶ Modeling:
 - Passenger-Luggage-Cargo Processes
 - Intra-Terminal
 - Integration of Land Side and Air Side Processes
 - Scaling Ability (microscopic-macroscopic)
- ▶ Conception of Traffic Guidance/Management:
 - Terminal Traffic Management
 - Infrastructure Management
 - Individual Guidance
 - What-if-Capability
 - Safety-Security Management
- ▶ Cooperation between DLR and RWTH Aachen (University): Virtual Institute: Air Transport and Airport Research





**Thank you for your attention
and
best wishes for your workshop**



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