Project Objectives

- Define comprehensive performance framework
- Propose and formalise market designs
- Evaluate impact of different market designs
- Identify requirements and barriers for implementation

Problem Statement

The Problem of Airport Congestion

- Continuous growth in air transport → Pressure on airport capacity
- New airports/runways: long look-ahead time, often difficult or unfeasible (cost, environment, land availability...)
- Need for demand management policies for airport capacity allocation

Shortcomings of Current System

- Inefficient use of capacity
- Barriers for competition

Options for reform

Market mechanisms:
- Slot auctioning
- Secondary trading

Potential benefits:
- Incentives for a more efficient and flexible use of scarce capacity

Risks:
- Impact on airline operating costs
- Market failures / market power

Current Slot Allocation System

- Reg. 95/93 (+amendments)
- Based on IATA WSG

Research Objectives

Project Objectives

- Define comprehensive performance framework
- Propose and formalise market designs
- Evaluate impact of different market designs
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Challenges

- Multiplicity of dimensions and stakeholders
- Network effects
- Complex combinatorial assignment problem
- Strong impact of market design on final outcome

Approach: Auction Engineering and Agent-Based Modelling

Target Outcomes

- Review of different auction types and market designs and their applicability to airport slot allocation
- Comprehensive set of indicators for the assessment and comparison of different market designs
- Software platform allowing the testing of the proposed market-based mechanisms
- Data analysis and visualisation tools to facilitate the interpretation of the simulation results
- Assessment of the impact of different market-based mechanisms at European level
- Implementation roadmap

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