

## Problem Statement

### The Problem of Airport Congestion

- Continuous growth in air transport  $\Rightarrow$  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:

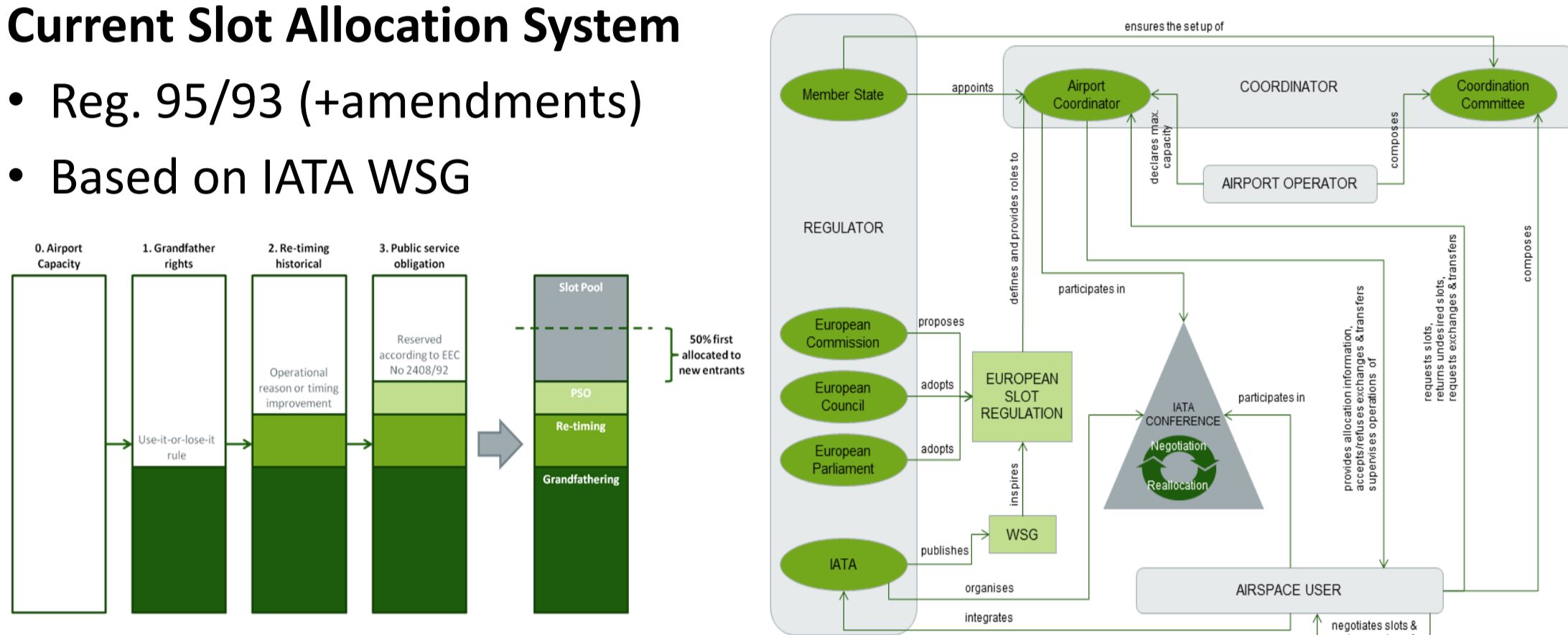
- Incentives for a more efficient and flexible use of scarce capacity

Risks:

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

### Current Slot Allocation System

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



## Research Objectives

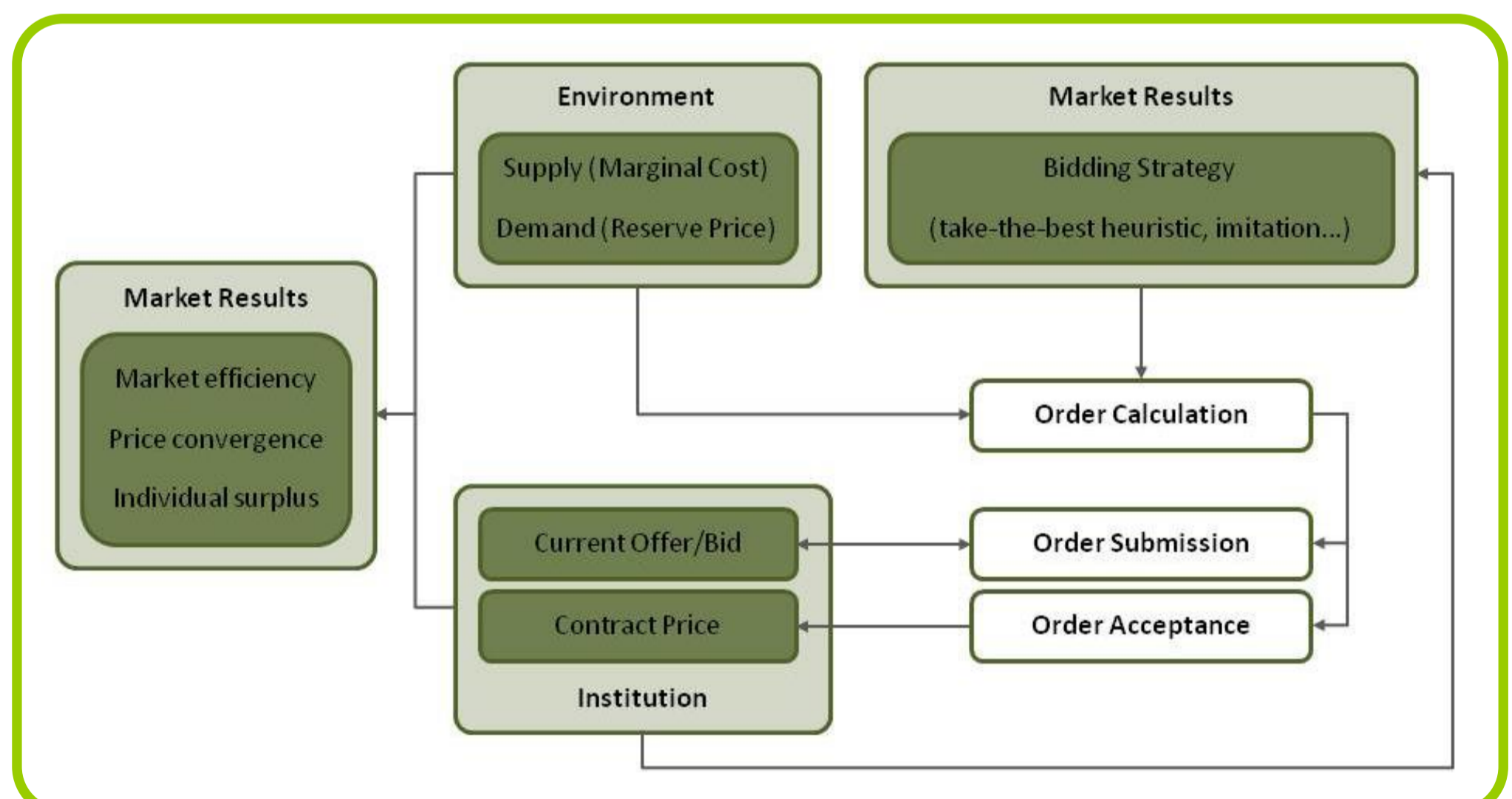
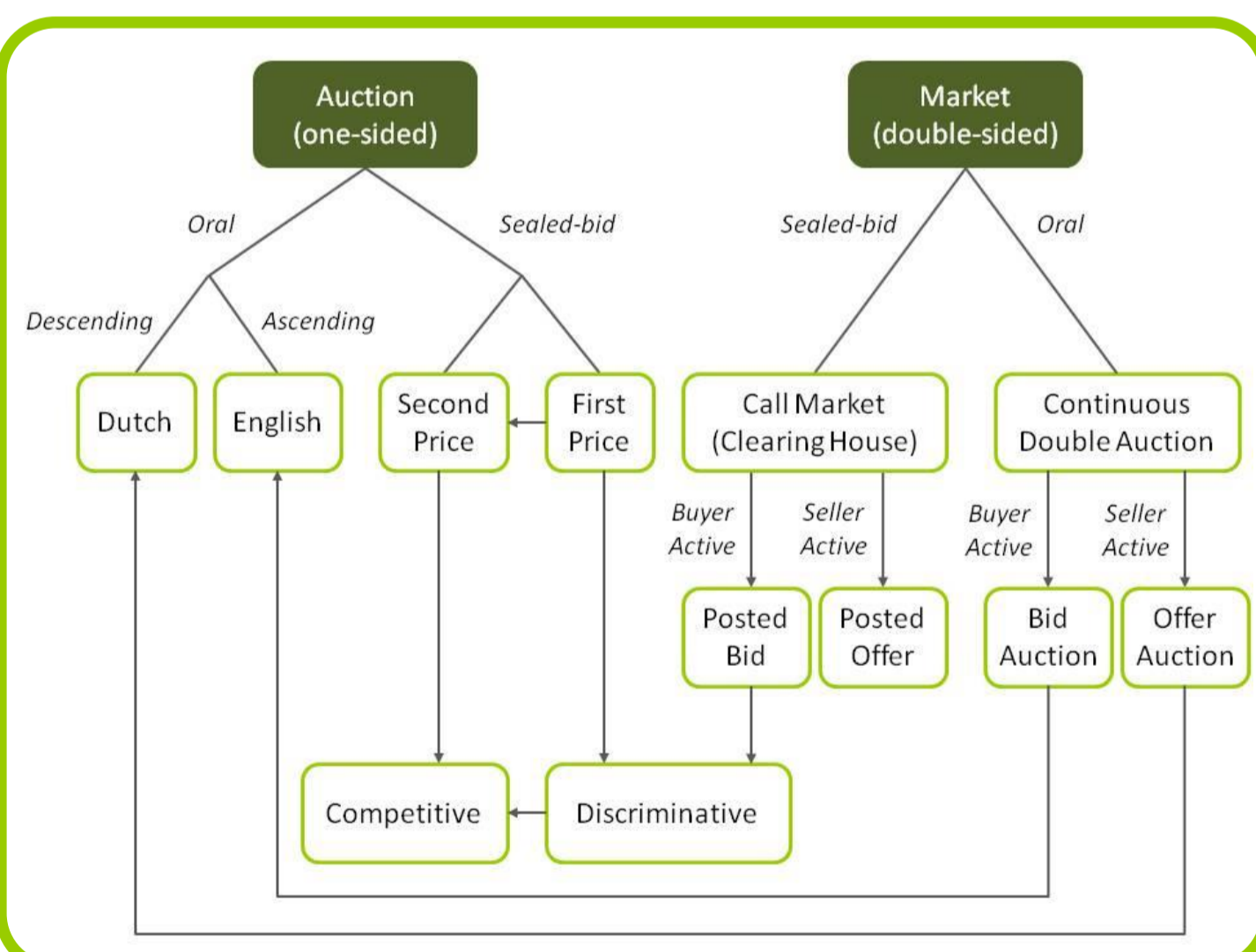
### Project Objectives

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

### 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