

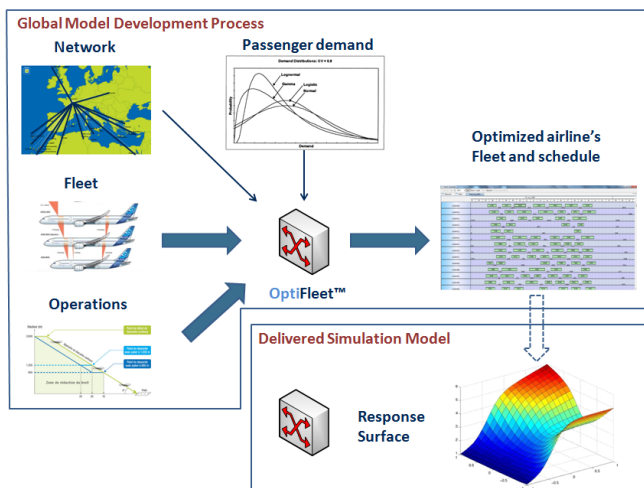
Integrated Models of Airlines for a Green Impact on the New Economy

Project IMAGINE is a Clean Sky project with focus economic costs modeling.

Its objectives are:

- Design models for direct operating costs
- Implement models as GATAC compatible modules that can be used in a trajectory optimization campaign
- Deliver models to the GATAC team

The objective is to complement the GATAC trajectory optimization platform with implementations of economic models. This will allow GATAC to produce new optimal trajectory that can be both environmental friendly and economically acceptable by airlines.



IMAGINE has developed several economic models:

- Basic models based on actual modelling of the business rules (Fuel, Environmental taxes, Navigation charges...)
- Statistical models for direct operating costs (maintenance, possession...)
- Operations Research models based on rule engines and linear programming optimization (Crew, Fleet...)
- Response surface models based on experiments (Integrated model...)

These models are then delivered as a set of deliverables (implemented in Java, Python and C++) that can be used as modules in the GATAC environment.

Project facts:

- Leader: OpenAirlines
- Partners: Eurodecision
- For the products: Trajectory optimization
- Budget: 496 K EUR
- Duration: 20 months

Goals & objectives:

- Provide economic models that can be integrated within GATAC trajectory optimization platform
- Design, develop and deliver models that cover direct operating costs related to: fuel, environment, navigation, maintenance, crew, fleet...

Technology challenges:

- Design models that are relevant and that can be efficiently run in an optimization loop
- Go beyond the single trajectory optimization as regards crew and fleet related costs that depend on aircraft rotations

Milestones:

- Project kick-off: Feb 2013
- Models specification : Apr 2013
- Models design: Nov 2013
- Models implementation: Jun 2014
- Models delivery: Nov 2014

Next steps: Develop new optimized trajectory that take into account economic constraints

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