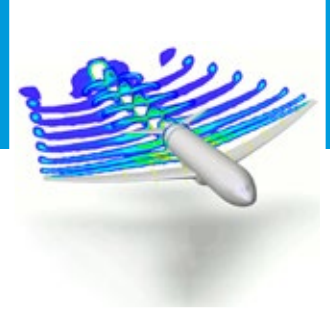


## Integrated Environment for Multi-physics Optimization

2014-2017



### Axe(s)

Modeling  
& Simulation

### Industries

**Numflo**  
Open Engineering  
GDTech  
SAGITA

The EI-OPT project focuses on a basic industrial research in order to allow two Walloon SMEs, Numflo and Open Engineering, to upgrade their existing simulation tools into an integrated design environment for optimizing aeronautical industrial components, especially rotating machines and helicopters.

In order to have competitive advantages over the market, the following areas will be covered:

- the unification of the design flow, in integrated multi-physics applications, in order to optimize the productivity of industry in the design phase of their products;
- the development of state-of-the-art methods of optimization, covering the following new methods:
  1. parameterization for complex geometries;
  2. advanced meta-models;
  3. optimization using evolutionary algorithms, gradient-based methods on adjoint functions and innovative investigation combining both approaches;
  4. introduction of uncertainty and non-deterministic methods to address the robust optimization;
  5. coupled optimization, multi-objectives, with integrated fluid-structure interactions.

### Research Bodies

ULg  
Cenaero  
Von Karman  
Institute for  
Fluid Dynamics

### Total Budget

2,6 M€

### Type

R&amp;D

Through the research conducted in this project, the partners will be among the first to have an integrated global software offer (multi-physics simulation and parametric optimization) on the market.