

PROJECT

VSM

Validated Surge Model

Funding: European (Horizon 2020)

Duration: Oct 2014 - Mar 2015

Status: Complete

Total project cost: €71,429

EU contribution: €50,000



Call for proposal: H2020-SMEINST-1-2014

[CORDIS RCN : 194697](#)

Objectives:

Filton Systems Engineering (FSE) intends to establish methodologies, which have been verified using test data, to provide validated accurate surge pressure predictions within aircraft fuel systems. This would replace physical Aerospace Test Rigs with a virtual test rig to reduce development cost and lead-time by improving the robustness/integrity of surge/ two phase flow fluid modelling. This allows aerospace companies to optimise architecture early in the design phase minimising installation and structural weight, increasing aircraft efficiency, thereby lowering operating cost and also reducing carbon footprint.

Commercial realisation of the programme is through the sale of services/methodologies to aerospace customers and also potentially through the sale of validation test data to software houses to improve their marketing position relative to claims for predicting surge pressures; and the expansion of methodologies to cover fluid applications in other industries.

FSE is uniquely positioned to succeed within this task due to existing surge analysis, test management and rig specification capabilities which will also protect further work that develop from this programme of work.

Methodology:

The feasibility study undertaken under Phase 1 will comprise:

- IP investigation:
 1. Current IP for similar methodologies
 2. Use of IP to protect methodologies
- Use of copyright to protect data
- Potential commercial arrangements with final customers:
 1. Requirements
 2. Use of data, services & methodologies
- Potential commercial arrangements with software house:
 1. Support for commercial code
 2. Use of validation test data
- Statement of Work for Phase 2 (inc. plan & budget)

- Top level test facility requirements
- Top level test requirements
- Produce Comprehensive Feasibility Report

If Phase 1 is successful, further funding will be applied for under Horizon 2020 Phase 2 with FSE providing the balance of the funding. It is estimated that Phase 2 will take a further 2½ years.

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Filton Systems Engineering Ltd

Address:

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BRISTOL
BS35 2AR
United Kingdom

EU Contribution: €50,000

Technologies:

Computer-aided design and engineering
CFD and FEA modelling of gust loads

Development phase: Validation

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Decarbonisation

Geo-spatial type: Other