

PROJECT

MOTIVATE

Matrix Optimization for Testing by Interaction of Virtual And Test Environments

Funding: European (Horizon 2020)

Duration: Jun 2017 - May 2020

Status: Complete

Total project cost: €741,851

EU contribution: €492,876



Call for proposal: H2020-CS2-CFP04-2016-02

[CORDIS RCN : 210355](#)

Objectives:

A significant step change is proposed in the way virtual and test environments are used together in an industrial environment to reduce the cost, risks and time associated with product development.

Enabling technologies, which have been demonstrated in laboratory conditions during a series of EU FP 5 and 7 projects, will be transitioned into the industrial environment and demonstrated in a structural test on an aircraft subcomponent.

In more detail: approaches to quantifying uncertainty in measurements of displacement and strain fields obtained using digital image correlation will be reviewed and a simple-to-use, robust methodology developed for use in industrial environments, with attention paid to the need to consider the entire measurement volume as well as within the same timescale as a structure test. In addition, recent advances in the validation of simulations, using image decomposition to compare predicted and measured data fields, will be incorporated into advanced structural test protocols taking account of uncertainties to provide statements on the extent to which the predictions represent reality, i.e. the validity of the simulations. Best practice guidelines will be developed to allow the test matrix to be optimised thus minimizing the cost and time required for tests while maximising the reliability and credibility of the simulations.

The proposed research represents a significant and generic advance in the technologies and methodologies used to validate computational models of structures that will benefit a wide range of industrial sectors, including the aerospace industry where it will support the introduction of disruptive technologies, such as highly integrated structures, by enabling high fidelity simulations. A strong programme of exploitation and dissemination is proposed using traditional routes as well as digital shorts, webinars, and a blog as well as workshops linked to the revision of the prenormative document published by CEN.

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:

The University Of Liverpool

Address:

Brownlow Hill 765 Foundation Building
Liverpool
L69 7ZX

United Kingdom

Organisation Website:

<http://www.liv.ac.uk>

EU Contribution: €189,226

Partner Organisations:

Athina-Erevnitiko Kentro Kainotomias Stis Technologies Tis Pliroforias, Ton Epikoinonion Kai Tis Gnosis

Address:

Artemedios 6 Kai Epidavrou 6
151 25 Maroussi
Greece

Organisation Website:

<http://www.athena-innovation.gr>

EU Contribution: €141,250

Dantec Dynamics Gmbh

Address:

KAESSBOHRERSTRASSE 18
89077 Ulm
Germany

Organisation Website:

<http://www.dantecdynamics.com>

EU Contribution: €162,400

Eidgenoessische Materialpruefungs- Und Forschungsanstalt

Address:

Ueberlandstrasse 129
8600 DUEBENDORF
Switzerland

Organisation Website:

<http://www.empa.ch>

EU Contribution: €0

Technologies:

Computer-aided design and engineering
Virtual Prototyping

Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Other specified

Geo-spatial type: Other