

models, EXperiments and high PERformance computing for Turbine mechanical Integrity and Structural dynamics in Europe

Fact Sheet

Project Information

EXPERTISE

Grant agreement ID: 721865

[Project website](#) 

Status

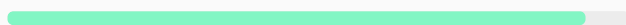
Ongoing project

Start date

1 March 2017

End date

28 February 2021



Funded under

H2020-EU.1.3.1.

Overall budget

€ 3 815 947,44

EU contribution

€ 3 815 947,44

Coordinated by

POLITECNICO DI TORINO

 Italy

Objective

Energy and Mobility are two primary driving forces in the 21st century. Development of incremental and disruptive technologies will have key impacts on the world's societies, and on safety, security and competitiveness of Europe. Amongst those technologies, gas turbines will play a major role. Recovery of shale gas depends decisively on compressors. Modern gas supplied power plants are bridging towards the age of renewable energies. Aeroengines are to undergo the most massive changes in their history with the advent of composite materials, gear boxes, and turbine-electric concepts separating generation of power and thrust. A technological commonalities of the upcoming challenges is the need for full model based development and computer system simulation.

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There is agreement on this in the computational fluid dynamics (CFD) community. The structural dynamics and vibration questions are at present far from being addressed adequately. While US agencies and Asian powers have already started to prepare themselves, European research organisations and companies still seem to be too fragmented to reach critical research resources and start corresponding initiatives. There are two main reasons for this. First, the physics of mechanical joining technologies that dominate the damping behavior of the large-scale structures under debate, are still poorly understood. Second, there is a lack of high performance computing (HPC) capabilities in structural dynamics, which goes back to the lack of knowledge of effective HPC technologies for structural dynamics.

Since the US, China and India have started efforts in the field, we propose a European contribution through a Marie Curie ETN to allow a first generation of early stage researchers to catch up on the topics, ideally open up new fields of insight and

approaches, and finally form a seed group for the upcoming challenges of the European turbine industry with respect to nonlinear structural dynamics and HPC.

Field of science

/engineering and technology/environmental engineering/energy and fuels/fossil energy/gas
/engineering and technology/environmental engineering/energy and fuels/renewable energy
/humanities/history and archaeology/history
/natural sciences/physical sciences/classical mechanics/fluid mechanics/fluid dynamics

Programme(s)

Topic(s)

Call for proposal

H2020-MSCA-ITN-2016

Funding Scheme

MSCA-ITN-ETN - European Training Networks

Coordinator



POLITECNICO DI TORINO

Address

**Corso Duca Degli Abruzzi 24
10129 Torino**

 Italy

[Website](#) 

Activity type

**Higher or Secondary
Education Establishments**

[Contact the organisation](#) 

EU contribution

€ 516 122,64

Participants (10)



IMPERIAL COLLEGE OF SCIENCE TECHNOLOGY AND MEDICINE

 United Kingdom

EU contribution

€ 546 575,76

Address

**South Kensington Campus
Exhibition Road
SW7 2AZ London**

[Website](#) 

Activity type

**Higher or Secondary
Education Establishments**

[Contact the organisation](#) 



UNIVERSITAET STUTT GART

 Germany

EU contribution

€ 249 216,48

Address

**Keplerstrasse 7
70174 Stuttgart**

[Website](#) 

Activity type

**Higher or Secondary
Education Establishments**

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THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD

 United Kingdom

EU contribution

€ 273 287,88

Address

**Wellington Square University
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OX1 2JD Oxford**

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Activity type

**Higher or Secondary
Education Establishments**

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ECOLE CENTRALE DE LYON

 France

EU contribution

€ 262 875,60

Address

**Avenue Guy De Collongue 36
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Activity type

**Higher or Secondary
Education Establishments**

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MIDDLE EAST TECHNICAL UNIVERSITY

 Turkey

EU contribution

€ 235 557,36

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Activity type

**Higher or Secondary
Education Establishments**

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TECHNISCHE UNIVERSITAET MUENCHEN

 Germany

EU contribution

€ 498 432,96

Address

**Arcisstrasse 21
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Activity type

**Higher or Secondary
Education Establishments**

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BARCELONA SUPERCOMPUTING CENTER - CENTRO NACIONAL DE SUPERCOMPUTACION

 Spain

EU contribution

€ 495 745,92

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08034 Barcelona**

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Activity type

Research Organisations

[Contact the organisation](#) 



VSB - Technical University of Ostrava

 Czechia

EU contribution

€ 232 422,48

Address

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Activity type

**Higher or Secondary
Education Establishments**

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CRAY U.K. LIMITED

 United Kingdom

EU contribution

€ 273 287,88

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5 Fleet Place
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Activity type

**Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)**



MAVEL AS

 Czechia

EU contribution

€ 232 422,48

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Jana Nohy 1237
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Activity type

**Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)**

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