UPSCALE Fact Sheet

Upscaling **P**roduct development **S**imulation **C**apabilities exploiting **A**rtificial inte**L**ligence for **E**lectrified vehicles

UPSCALE

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Funded Under:
SOCIETAL CHALLENGES - Smart, Green And Integrated Transport

Total cost: € 3.994.802,50

EU contribution: € 3.994.802,50

Coordinated by: IDIADA AUTOMOTIVE TECHNOLOGY SA

Programme: H2020-EU.3.4.- SOCIETAL CHALLENGES- Smart, Green and Integrated Transport

Topic: LC-GV-02-2018 – Virtual product development and production of all types of electrified vehicles and components

Call for proposal: H2020-LC-GV-2018-2019-2020

Funding Scheme: RIA – Research and Innovation Action

Coordinator: IDIADA AUTOMOTIVE TECHNOLOGY SA
Spain
Net EU contribution: € 474.700,00

VOLVO PERSONVAGNAR AB
Sweden
Net EU contribution: € 389.725,00

ENGYS LTD
United Kingdom
Net EU contribution: € 558.375,00

VOLKSWAGEN AKTIENGESELLSCHAFT
Germany
Net EU contribution: € 390.172,50

VIRTUAL VEHICLE RESEARCH GMBH
Austria
Net EU contribution: € 372 250,00

CENTRO RICERCHE FIAT SCPA
Italy
Net EU contribution: € 386.250,00

VRIJE UNIVERSITEIT BRUSSEL
Belgium
Net EU contribution: € 292 500,00

ESI GROUP
France
Net EU contribution: € 261 730,00

ECOLE NATIONALE SUPERIEURE D'ARTS ET METIERS
France
Net EU contribution: € 234.850,00

F.INICIATIVAS ESPAÑA
Spain
Net EU contribution: € 80.125,00

ALGORITHMICA TECHNOLOGIES GMBH
Germany
Net EU contribution € 168.000,00

Objective

UPSCALE is the first EU-project that has the specific goal to integrate artificial intelligence (AI) methods directly into traditional physics-based Computer Aided Engineering (CAE)-software and –methods. These CAE-tools are currently being used to develop road transportation not only in Europe but worldwide. The current focus of the project is to apply AI-methods to reduce the development time and increase the performance of electric vehicles (EVs) which are required by the automotive industry to reduce global emission levels. High performance computing (HPC) and CAE-software and –methods play a decisive role in vehicle development process. In order to make a significant impact on the development process, the two most HPC intensive CAE-applications have been chosen as use cases for the project: vehicle aero/thermal- and crash-modelling. When considering total automotive HPC usage, approximately 20% is used for aero/thermal simulations and up to 50% of HPC resources are utilized for crash simulations. By improving the effectiveness of these two areas, great increases in efficiency will lead to a 20% of reduction of product time to market. Other novel modelling approaches such as reduced order modelling will be coupled to the AI improved CAE-software and - methods to further reduce simulation time and ease the application of optimization tools needed to improve product quality. Through the combined effort of universities, research laboratories, European automotive OEMs, software companies and an AISME specialized in machine learning (ML), the UPSCALE project will provide a unique and effective environment to produce novel AI-based CAE-software solutions to improve European automotive competitiveness.

THANK YOU!