

TRANSFORMERS



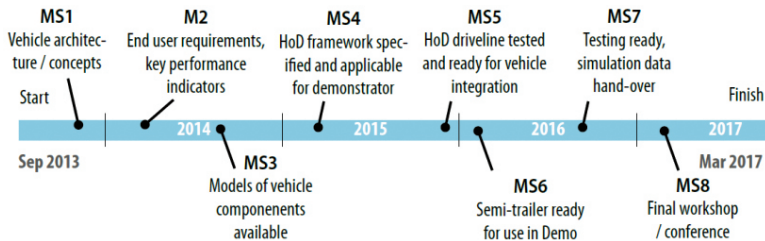
Configurable and Adaptable Trucks and Trailers for Optimal Transport Efficiency

MOTIVATION AND OBJECTIVES

TRANSFORMERS combines a modular approach for mission rightsizing by means of distributed hybridisation, truck engine rightsizing, and a semi-trailer design that addresses both, aerodynamics and load efficiency improvements. By combining reduced energy consumption with increased loading efficiency, the goal is to reduce overall energy consumption by 25% on a tonne.km basis in a real world application within the existing European regulatory framework.

PROJECT PLAN, MILESTONES AND DELIVERABLES

The figure below summarises key milestones and major deliveries from the project:



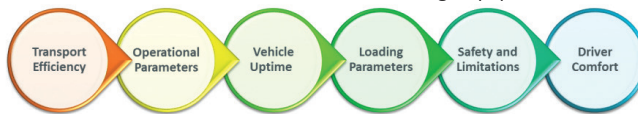
TECHNICAL APPROACH

TRANSFORMERS will hybridise a mission adaptable truck-trailer combination by integrating distributed power, energy storage and intelligent energy controls in the trailer, known as “Hybrid-on-Demand”. A modular approach to hybridisation will be demonstrated, allowing future mission rightsizing options. The results will include: a pre-standardisation proposal for the truck-trailer interface to facilitate future market penetration, vehicle dynamics, an aerodynamically optimised hybrid-on-demand semi-trailer demonstrator, a loading optimised semi-trailer, extensive simulations of future combinations, the effects on highway infrastructure and economic viability.

ACHIEVEMENTS

WP1 Use Cases and End-user Requirements

European road freight transport market/fleet analysis, key performance indicators (KPIs) defined and verified with a broad end user group, possible test case scenarios defined for WP6.



TRANSFORMERS KPIs

Hybrid-on-Demand Framework

WP2 Holistic Simulation

Vehicle model architecture with sub-system interfaces defined, and sub-system models available for holistic simulation.

WP3 Electric Hybrid-on-Demand (HoD) Framework

First proposal for a HoD pre-standard framework, drivetrain design and safety study for the demonstrator.

WP4 Mission Adaptable Truck-Trailer Architecture

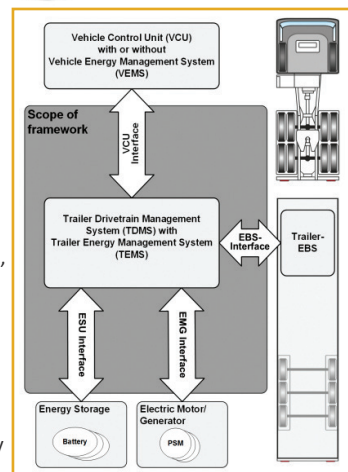
Aerodynamic study, also designs and components identified for the HoD trailer with aerodynamic features, and for the load optimised semi-trailer.

WP5 Infrastructure Aspects and Compliance incl. Regulatory Framework

Identification of the critical infrastructure to assess, selection of the assessment methods.

WP7 Dissemination and Exploitation

Website, flyer, newsletters, end-user group and advisory board meetings, and conference papers.



Budget 7.9 M€

Duration 42 months

DG Research & Innovation

Coordinator Paul Adams, Volvo

Partners Volvo, Fraunhofer, Schmitz Cargobull, TNO, Virtual Vehicle, Van Eck, Bosch, IFSTTAR, FEHRL, P&G, IRU, Uniresearch, DAF

Website www.transformers-project.eu

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