

Transformers

Configurable and adaptable trucks and trailers for optimal transport efficiency



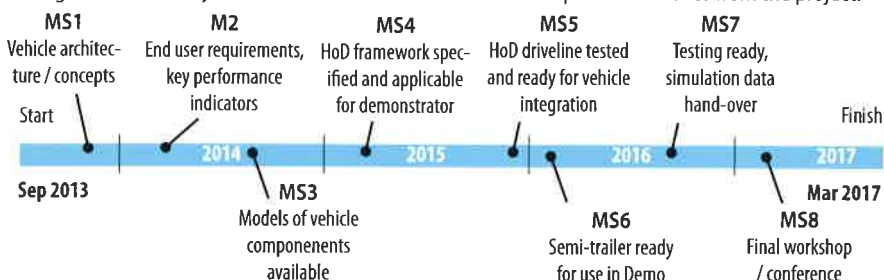
Motivation and Objectives

The transportation of goods within Europe by means of commercial road vehicles has been growing steadily for the last decades and thus pacing economic growth and is predicted to continue in the future.

TRANSFORMERS combines a modular approach for mission rightsizing by means of hybridisation, truck engine rightsizing and a semi-trailer design that simultaneously addresses aerodynamics and load efficiency improvements. The overall goal is to achieve 25% energy load efficiency (in energy/km.tn) in a real world application taking into account the needs to maintain road infrastructure and traffic safety. The technology selection and sizing of the electric drive system will include analysis of the economic viability.

Project Plan, Milestones and Deliverables

The figure conveniently summarises the milestones and main expected deliveries from the project.



Technical Approach

TRANSFORMERS plans to hybridize the truck by integrating power and intelligent energy controls in the Trailer that adapt to the mission profile and are capable to interact with existing and future trucks. This is defined as Hybrid-on-Demand in the project. The major advantage over the classic vehicle hybridization approach is that no changes in the trucks / tractor heads should be needed, which in turn also allows new options in mission rightsizing by combining several trailers to make a road train. The results will include a prestandard proposal for the interface between truck and trailer to allow future interchangeability of the hybridised trailers with legacy trucks. Additionally vehicle dynamics of trailer and semitrailer will be included in the investigation.

Achievements

- WP1: Use cases and end-user requirements
- WP2: Holistic simulation
- WP3: Electric Hybrid-on-Demand Framework
- WP4: Mission adaptable truck-trailer architecture
- WP5: Infrastructure aspects and compliance incl. regulatory framework
- WP6: Demonstration, validation and evaluation
- WP7: Dissemination and exploitation



Budget	8 M€	Funding	5.2 M€
Duration	42 months	Start	September 2013
DG	FP7-SST-2013-RTD-1	Contract n°	SCP3-2013-605170
Coordinator	Marcus Elmer, Volvo	Contact	marcus.elmer@volvo.com
Partners	14 partners among them Volvo, Daimler, DAF, Schmitz Cargobull, Bosch, TNO, Fraunhofer		
Website	www.transformers-project.eu		

