

TRANSFORMERS

Configurable and Adaptable Trucks and Trailers for Optimal Transport Efficiency

We proudly present the second official Transformers newsletter to you. In this edition the first results on the loading efficiency are described.

Enjoy reading – we are sure you will. If you have any questions about this newsletter or project, please contact us: on info@uniresearch.nl | www.transformers-project.eu

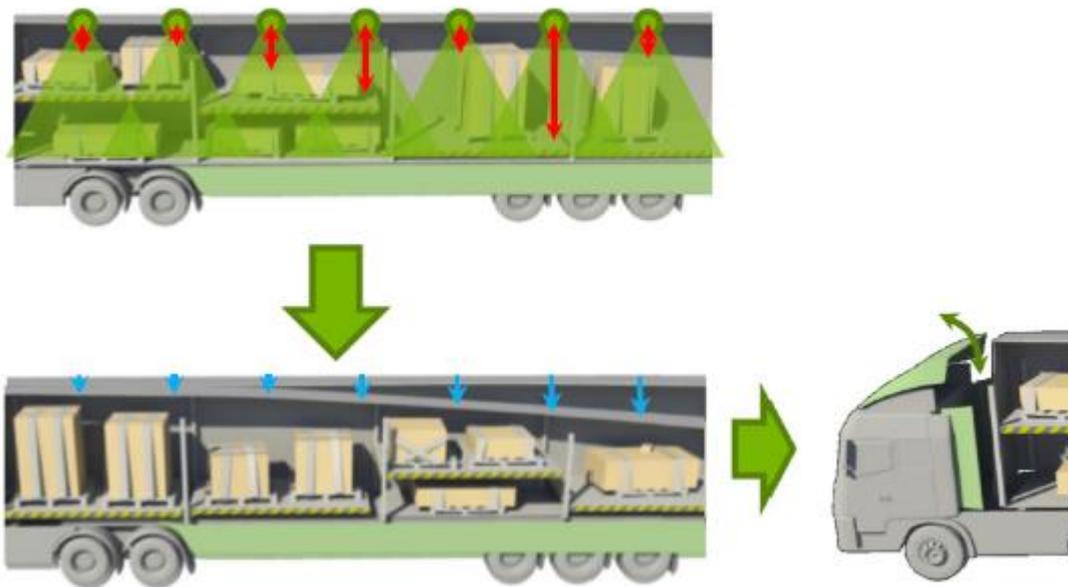


First Results on Load Optimization

One of the challenges to optimize truckload capacity, is to find some extra millimeters to be able to always squeeze in 34 pallets in a trailer. Trailer manufacturer Van Eck has presented some alternatives, such as a flexing front bulkhead and some different alternatives for the door, that will give at least 60 mm extra or more. Also some options for double floor and some options for moveable roof have been presented.

A tour analysis at EDEKA has been performed, with the objective to identify trailer requirements. The transport tour, facilities with ramp etc. and the loading process were observed and analyzed. A few observations were that an uneven or deep step creates problems during loading, additional reinforcements inside of sidewall is needed to cope with fork lift impacts. A box with securing straps was in the way, so a possibility to store straps would be good to develop.

Fraunhofer LBF is working on a load volume indicator. There are a few concepts defined. Depending of concept, each sensor will “see” a smaller or larger area within the trailer, and depending on that a different number of sensors will be needed to calculate the height profile. When the height profile is known, the roof height can be automatically adjusted accordingly, see picture below. [Read more>](#)



Overview of the Transformers Project

Nowadays, truck-trailer combinations are not optimized with respect to their missions. Ideally, future trucks and load carriers are easily adaptable for each freight, load and mission. And the vehicle combination is able to automatically adjust itself to the actual driving environment (i.e. traffic situation, topology, and payload).

The TRANSFORMERS project proposes to develop and demonstrate truck-trailer combination which can be optimised to their load and mission. [Read more>](#)



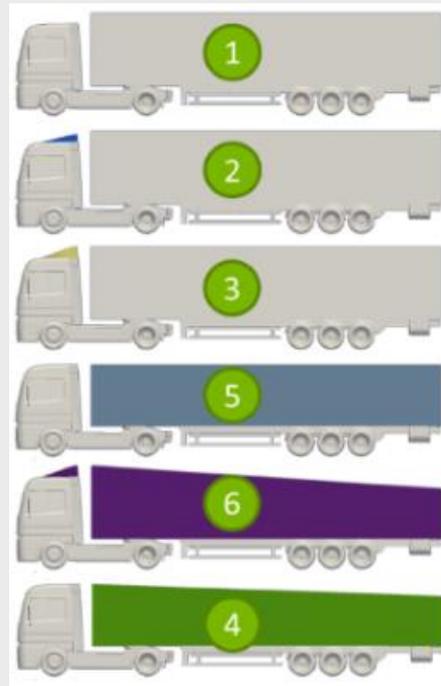
Aerodynamic design

toolbox

In TRANSFORMERS, the focus is to assess the various options and to select the optimal combination in terms of fuel saving potential, loading efficiency and cost.

Options that will be considered are:

- State of the art lightweight trailer designs
- Lift-able roofs to reduce frontal surface and lower drag with the possibility to load voluminous cargo when needed
- Automatic adjustable front deflector (spoiler) on top of the truck; Introduction of rear diffuser, side skirts, underbody deflectors, aerodynamic wheel housing and boat tail
- Closing gaps between truck and (semi)trailer



Schematic picture of an aerodynamic semi-trailer design and targeted innovations

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