

# iv2splus INFONET

## Gütermobilität, MdZ 5. Call (2014)

### MULE

#### Mobile multifunktionale urbane Logistik-Plattformen mit elektrischem Antrieb

The project focuses on the use of Mobile multi-functional Urban Logistics Platforms with Electric propulsion- MULEs - as sustainable logistics option in urban areas. By utilizing a generic interface like e.g. ISO-container and integrated energy storage devices MULEs can function as a basis for various logistic tasks. These tasks might include Milk-run services or Pick-up and Drop-off services. Further solutions and services will be developed during the project and the most promising applications with regard to urban freight logistics will be selected by utilizing a multi-dimensional, integrative approach. Their specific benefit for environment, customers, economy and regional services will be determined and possible technical solutions established, including a roadmap for the implementation.

In cities, non-consolidated Courier, Express and Parcel (CEP) services become a problem. Even after a conversion to electric propulsion, the traveled routes are long and create unnecessary traffic. The working hypothesis of the investigative Research assumes that Mobile multi-functional Urban Logistics Platforms with Electric propulsion (MULEs) will bring smart urban logistics to new heights. To name just a few examples they might be used as multi-client pick-up stations, intermediate storage for bicycle couriers, for milk runs which access multiple local intermodal nodes and as box systems being available on the positions for the pick-up ahead of the early peak in traffic. In addition generic autonomous logistics platforms are also used to relocate and maintain bike-rental stations and also as mobile charging stations capable of transporting a vehicle on top of it.

In Europe legal hurdles hamper market introduction of autonomous driving, even if the technical problems may be regarded as solved and if their introduction would lead to a reduction in the number of motorised vehicles. In parallel with the lowering of the cost of the sensors, an introduction of autonomous driving is expected by 2020. Until then, the innovative approaches may be tested on the basis of town logistics platforms.

The project unites expertise from logistics (tbwr, TU-Graz ITL, FGM, Scheuwimmer), (partial-) autonomous driving (TU Graz FTG) and incubation of inventions (EUC), which allows the forward looking work on defining technical and organizational conditions for selfdriving logistics platforms. The most promising applications in the field of logistics are searched via creativity techniques and expert surveys, selected via a multi criteria analysis and incubated focusing on practicability, also using the GUMOS tool enhanced by an industrial dimension.

Contradictory approaches (40 principles from TRIZ) will be used in the Project elaborating proposals for technical solutions, as measures of active and passive safety allowing safe autonomous operation. The benefits will be quantified by examining logistical processes and calculating energy consumption and emission reduction via the SEV-tool for the evaluation of climate protection measures in transport. A cost assessment - supported by visualization - will determine the acceptance, so the potential benefits for Austrian cities can be specified. With the findings from focus groups and expert interviews, needed further research will be specified making the introduction of autonomous logistics platforms till 2020 possible and also providing a roadmap for it. Showing the impact will allow Austria's shipping enterprising and logistics operators to prepare for the consequences. For the domestic automotive industry active in the field of logistics chances will arise widening their portfolio via solutions incubated in the project. Also, existing Austrian suppliers for Pick-up-Stations (where one LOI was received) may extend their market via mobile pick-up/drop-off stations; a European Research Project together with Berlin is envisaged.

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#### Project coordination

#### Project partners

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#### Links

Link zu Projekt MULE (inkl. Kurzvideo)  
<http://www.energie-umwelt.at/MULE/mule.htm>