

Eco-Driving: a Key enabler for future clean and efficient Mobility worldwide

The ecoDriver project

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Index

- **The challenge**
- **The project**
- **The activities**

The ecoDriver Challenge

- Existence of integrated systems for eco-driving
- New nomadic devices and Apps also support this concept
- However, there are gaps and shortcomings:
 - Long term effects are not as useful as short time effects
 - Quality of Nomadic Devices advice is not always good
 - Alternative modalities for feedback have not been widely explored
 - There's room for vehicle emission model inclusion
 - Little activities in distraction analysis and / or alternative display design
 - Forecast scenarios have been hardly approached



ecoDriver will

- Develop and test new principles for interface design
- Compare nomadic devices with integrated systems
- Cover a full range of vehicles
- Cover a full range of powertrains
- Develop and validate real-time energy consumption calculators
- Investigate how to tailor feedback to driver type and driving style so as to obtain high acceptance combined with the highest feasible compliance
- Conduct real-world evaluations of the proposed solutions
- Predict the impacts for the period to 2030



ecoDriver outcomes

The Challenge

- Real-time feedback on energy efficiency in driving for a very wide range of vehicle and powertrains
- Post-drive feedback and tutoring for eco-driving
- Tailoring feedback to driver personality and vehicle and traffic situation
- Real-time calculation of current energy consumption and how to modify demand to the powertrain (throttle, brake, gear) so as to reduce energy use
- Validation and evaluation of the above mentioned outcomes
- Impact and CBA until 2030



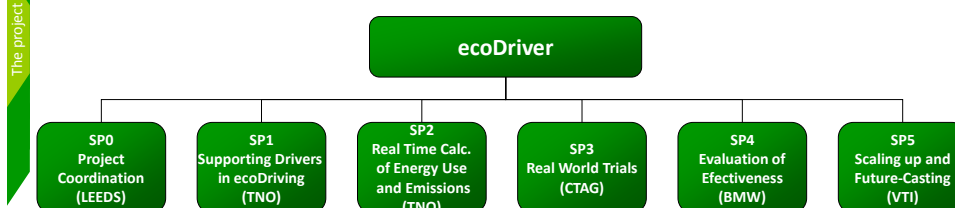
Project figures

The project

- VII Framework program, 7th Call
- Project Duration
 - October 2011 – September 2015 (48 months)
- Project Budget
 - Budget: 14.534.512 €
 - Funding: 10.700.000 €
- Project coordinator: University of Leeds
- Project partners:

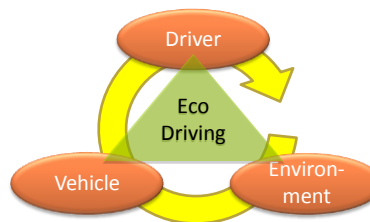

 BMW Group
 Forschung und Technik


Project organization



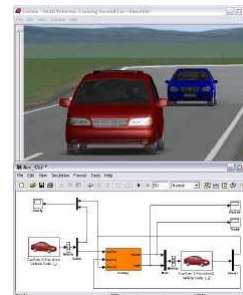
SP1. Supporting drivers in ecoDriving

- The activities
- **Main “Development” SP**
 - **Will develop feedback strategies (when and where) about**
 - Real time feedback on energy usage
 - Post-drive feedback
 - Creeping feedback
 - **Development and assessment of HMI, including**
 - Develop driver style detection and specific feedback strategies for them
 - A wide range of drivers will be considered in assessment
 - **Compare integrated and nomadic solution**

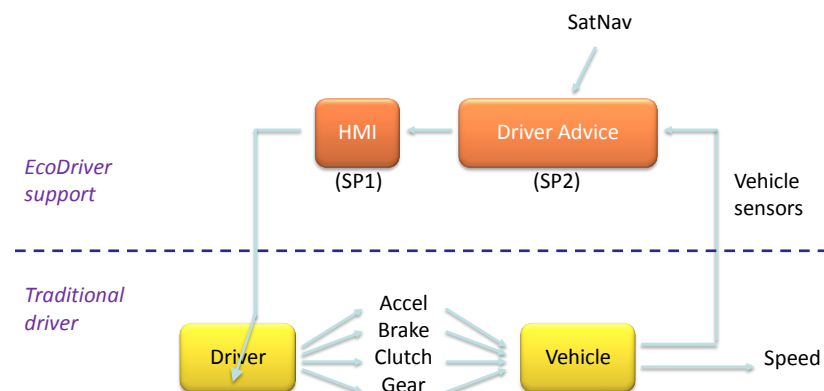


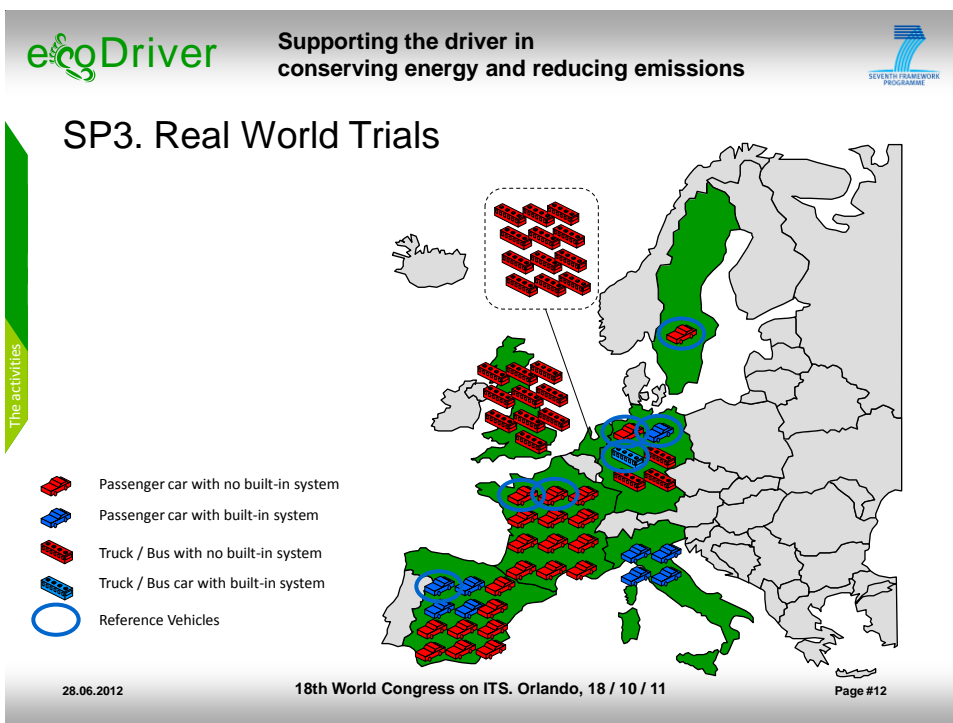
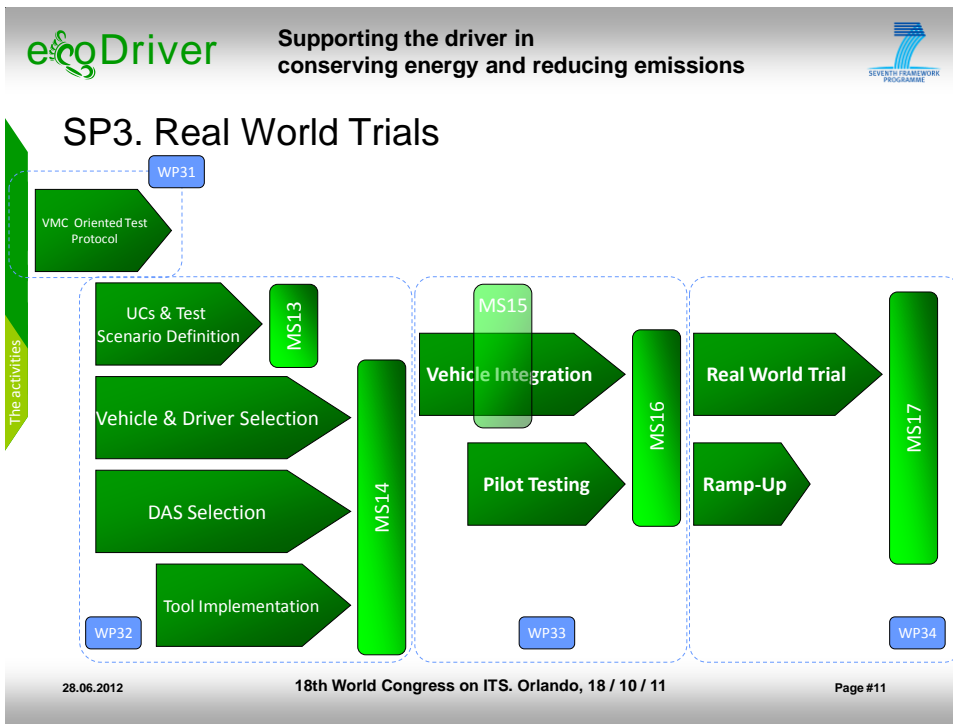
SP2. Real time calculation of energy use and emissions

- **Model development and validation**
 - Vehicle power consumption
 - Different powertrain models
- **Enhanced accuracy of the models**
 - On-line estimation using vehicle data
 - Surrounding data also considered (additional sensors, navigation)
- **Development of on-line algorithms providing a reference signal to the HMI (SP1)**



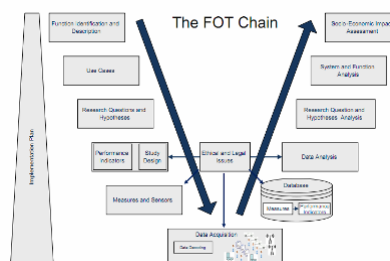
SP2. Real time calculation of energy use and emissions





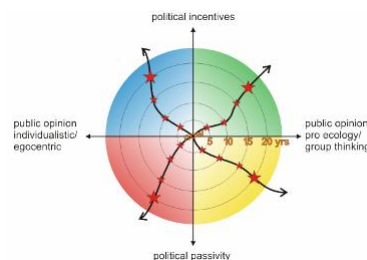
SP4. Evaluation of effectiveness

- Evaluation of the trials conducted in SP3
 - Using models and tools from SP2, evaluate the driving in terms of energy use and emissions
 - Provide an overview of the factors influencing driver acceptance
 - Compare the effectiveness of nomadic and non-nomadic solutions
- Even though ecoDriver is NOT an FOT, FESTA methodology can be used to some extent



SP5. Scaling up and future casting

- Predicts the impact of a variety of systems and solutions in the future by:
 - Create a range of scenarios based on the following axes:
 - technological development
 - lifestyle and attitude towards eco driving of individual drivers
 - political decisions with respect to eco-driving
 - Assess the network implications of green driving support systems for future networks
 - Predict the global impacts for a range of systems and scenarios
 - Carry out a cost benefit analysis for a range of systems and scenarios





Supporting the driver in
conserving energy and reducing emissions



eGoDriver