



IMAGinE Intelligent Maneuver Automation – cooperative hazard avoidance in realtime

Solutions for cooperative driving

PROJECT PROFILE

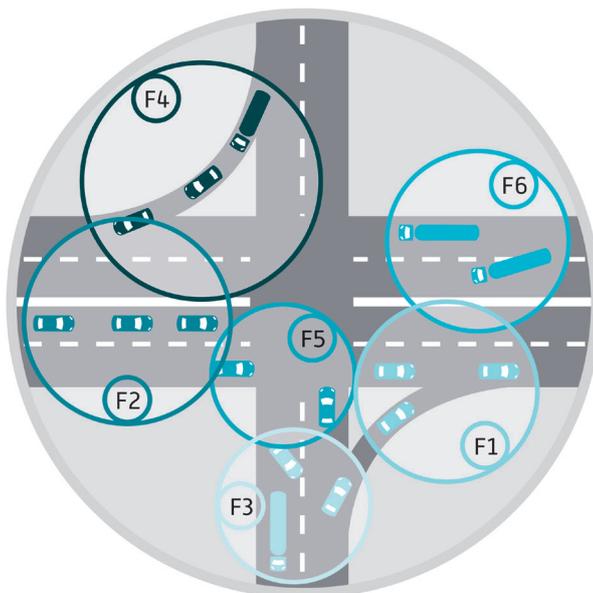
In the collaborative project IMAGinE, car manufacturers, suppliers and research institutions are working together to develop innovative assistance systems for the cooperative driving of the future. Transitioning from a pure exchange of information to collective maneuver planning will help avoid accidents and traffic jams, making driving generally safer. The available driver assistance systems and automated driving functions are currently incapable of performing such cooperative behaviours. To the extent that

highly automated and networked driving becomes pervasive in everyday traffic, the necessity for intelligent cooperation between vehicles also grows. Using a harmonised technical foundation agreed upon by all the project partners, in the future vehicles will communicate with one another and through the infrastructure in real time, acting in concert to plan and execute driving maneuvers. This will allow critical situations to be avoided or mitigated and increase overall traffic safety.

COOPERATIVE FUNCTIONS

Six typical traffic situations will be used to demonstrate how the information exchange, coordination and joint planning of driving maneuver will work in the future. To this end the project is expanding upon existing messaging protocols to create the

foundation for integrated situational and environmental awareness. Vehicles will thus be enabled to plan, coordinate and execute complex driving maneuvers on their own moving forward.



-  F1 Cooperative merging on highways
-  F2 Cooperative longitudinal control on motorways
-  F3 Cooperative overtaking on rural roads
-  F4 Cooperative strategic traffic distribution
-  F5 Cooperative turning at junctions
-  F6 Cooperative overtaking by heavy-goods vehicles on motorways

FACTS

Coordinator Opel Automobile GmbH
69 months duration [01/09/2016–31/05/2022]
€ 38,2 million budget

€ 17,9 million of funding
12 project partners
6 cooperative functions

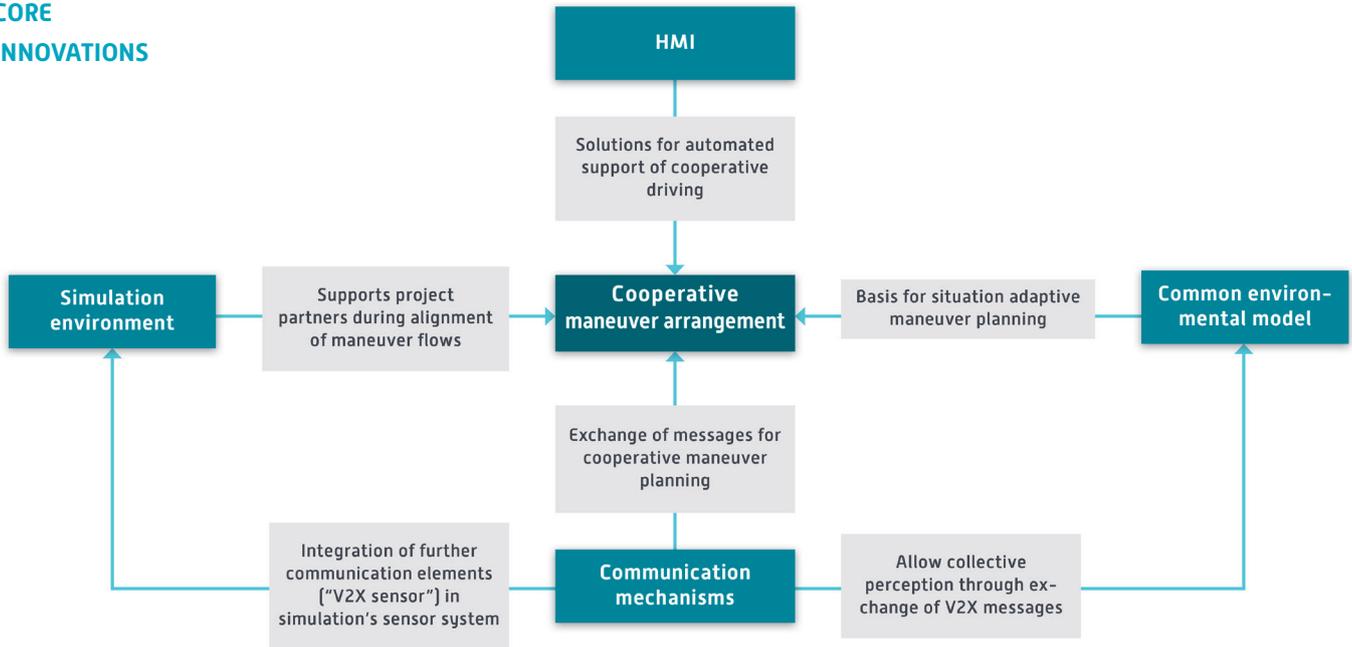


GOALS

IMAGinE’s goal is to develop new assistance systems for the cooperative driving of the future. The project will make significant contributions to current and future research into networked and cooperative assistance systems in the form of five core innovations. To pave the way for communications that culminate in such coordinated cooperation, the project has defined a joint framework specification for the messaging formats and various cooperative driving functions. Furthermore, a common vehicle-spanning environmental model will be defined for the first time that serves

as the basis for cooperative maneuver coordination between vehicles. There will also be innovations in virtual traffic simulation and computer-aided traffic planning. Interactions between various traffic participants will be represented in a virtual simulation environment for the first time. New human-machine interfaces will be developed for supported cooperative driving. To achieve this it is important not to bombard drivers with highly complex or even distracting information, but instead to motivate them to more cooperative behaviour on their part.

CORE INNOVATIONS



Supported by:

 Federal Ministry for Economic Affairs and Energy
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