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Networked cars save 11 billion euros

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AUTOMOBILE ELECTRONICS: *One Of the biggest networking projects of the automobile industry was completed successfully last week. The fleet trial "simTD" showed that billions of euros worth of economic damage in auto traffic could be prevented. And the project confirms that the technology for vehicular communication is mature for production cars.*

If all vehicles were networked with each other and with the traffic infrastructure, Germany could prevent economic damage at the level of 11 billion euros each year. This is the result of a fleet experiment "simTD", which was presented 20 June in Frankfurt am Main.

The installation costs are much lower. "For every euro that we invest in traffic networking, we achieve 8 euros in savings," estimates Ulrich Eichhorn, technical business leader of the association of automobile manufacturers.

Alone the prevention of accidents contributes a savings of 6.5 billion euros per year, and lower environmental damage adds another 5 billion in savings, according to calculations of the researchers.

Avoid traffic jams and accidents—that is one of the goals of networked vehicle communication. Future cars can benefit from the experience of past cars. (Picture source: dpa)

Guido Zielke, head of the Federal Traffic Ministry, sees the use of networking in flowing traffic: "The infrastructure doesn't have the necessary capacity to accept the increasing traffic." Florian Rentsch, the state minister of economy and traffic in Hess (a German state) agrees: "We need innovative systems to be able to deal somehow with the growing traffic volume."

Since 2008, under the rubric "simTD" (Safer Intelligent Mobility—Test Field Germany) the automobile industry has developed the necessary technology. With 69 million euros the project is one of the largest combined projects of the industry. All German auto manufacturers, including Ford and Opel, as well as suppliers Bosch and Continental have been working together with Deutsche Telecom and six research organizations.

The broad alliance was important, because not only the communications equipment in vehicles and infrastructure but also the software architecture and protocols should be unified.

Already at the beginning of the project everyone had agreed that it was not correct to try to go off on individual communication paths. Much more simTD is based on a partially redundant structure of WLAN and cellular communication, in order to achieve simultaneously the shortest reaction times in dangerous situations and to provide maximum coverage.

Since effectiveness is assured only when a certain number of vehicles is outfitted with the technology to warn of impending danger, simTD is also committed to introducing the technology into the traffic infrastructure. Traffic signs and red-light signals should be able to receive signals from vehicles via WLAN or cellular signals. The connection of the infrastructure with traffic centers can be done with fiber optic cables, or, where laying them could only be done at high costs, over cellular networks.

During the testing, in which 1.7 million kilometers of driving was completed on public streets and highways, the technology proved itself to be robust. For example, warning of traffic jams was successful in 97% of all cases, and safety-critical functions were investigated under laboratory conditions on a test track. "The function capabilities were extensively proven," confirmed Zielke, whose ministry funded the project with 30 million euros.

In total engineers tested 19 different functions in the project ranging from warning the driver of approaching emergency vehicles to displaying speed limits on the dashboard. For which functions a customer would be willing to pay was also investigated within simTD. Best received was the warning of a traffic jam ahead, for which 78% were willing to pay. Second place was the traffic-light assistant that displays the remaining time for a red light. Third place was the display of the speed limit, which could be utilized by environmentally-conscious drivers.

Already before the presentation of the results, Thomas Weber, head of Daimler's research division, made known that Daimler will bring the first "car-to-X" functions into production cars by 2015. "With the "car-to-X" technology we have developed a market-ready foundation technology that will make possible a whole new generation of driver-assistant systems," according to Weber. "That also helps us with the further development of autonomous driving functions."

In order to bring the technology quickly into production, the Federal Traffic Ministry is working on cooperative agreements with the neighboring Netherlands and Austria. On the 1100 km stretch between Rotterdam and Vienna, all construction zones should be outfitted with simTD technology to warn approaching drivers. Thus the information of today's dynamic navigation systems would be much more current.

State minister Rentsch wants more. The technology should enable us to do away with the last fixed speed limits of our states. Fixed speed limits posted on signs, according to the minister, is "technology of the Stone Age."