

## **Automotive technology in 2010 - potentials for passenger car applications**

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Univ.-Prof. Dr.-Ing. H. Wallentowitz

Dipl.-Ing. J. Leyers, Dipl.-Ing. P. Urban

Institut für Kraftfahrwesen Aachen (ika), RWTH Aachen

Dr.-Ing. T. Parr, Forschungsgesellschaft Kraftfahrwesen mbH Aachen

The automobile industry is on the verge of implementing a number of innovative technologies in the coming years. These innovative technologies will lead to new functionalities in the vehicle and partly to significant modifications of the development- and production process. This has already affected areas of the supplier industry. The requirements for automotive suppliers have increased significantly with respect to innovation in development and production [1] [2] [9]. An important basis for the successful tackling of the connected tasks is to evaluate the most important present, and above all the mid- and long-term automotive trends and their effects on the supplier industry.

### **Future vehicle technologies**

Due to the increasing use of telematics as well as driving assistance systems and also of further electronic components, significant changes are in start particularly for the **vehicle interior**. In future, the so-called "human machine interface" (hmi) will be significantly influenced by new vehicle systems [15] and is of particular relevance. In order to use these future systems, the driver has to be released from guiding a vehicle in part. To achieve this relief, future technology must take over several tasks, which have been fulfilled by the driver so far. Currently, systems for collision warning and for independent emergency braking are being developed. Synergy potentials already exist that could be used, if an intelligent control of restraint systems such as safety belts and airbags could use data from collision warning systems. Further systems are needed for accident prevention that monitor the vehicle's surroundings. Here, sensors, camera technologies with picture evaluation as well as instruments for the target guide may act together in the future. The pursuit of the long-term target, to guarantee accident free driving, will change the vehicle and its interior significantly.

It can already be assumed today that the 12V-supply-system, which is today's standard, will not be sufficient for the **electric energy supply** in future, due to the rising number of comfort- and safety systems. 42V-supply-systems are being developed [13]. Due to several unanswered questions, only a gradual introduction of the technology is expected at the moment. The new supply-system can be powered by a starter-generator. Due to the increased capability of the supply-system, active chassis systems can be realised among other x-by wire systems. Further more, a starter generator may also be used as an auxiliary motor for short distances if it is specifically designed and fitted.

Air-condition compressors, water pumps and other belt-driven systems can be designed mechatronical in the future. Due to the electrical operation of such aggregates, an on