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The automobile is currently undergoing what is probably its greatest revolution since its invention. Software and electronics are being employed to perform an increasing number of tasks and are turning the car into a mobile high-tech machine. “Modern assistance systems can prevent many accidents or at least minimize the consequences. However, these automated driving functions also lead to new problems,” explains Jann Fehlauer, Managing Director of DEKRA Automobil GmbH.

DEKRA study on autonomous driving: The risks of multitasking

These days, highly automated driving functions are already capable of independently controlling a vehicle. The first of such systems, the Mercedes DrivePilot, has already been approved in Germany. It means that under clearly defined and relatively strict limited preconditions, motorists can devote their attentions to other activities. Nevertheless, they need to be prepared to intervene in an emergency.

Holiday travel – avoid four fatal mistakes: Properly securing children in the car

A child’s urge to move about and play is severely restricted on lengthy car journeys. Sooner or later, this will be reflected in a child’s mood. However, DEKRA experts warn motorists not to react to these situations by loosening the child’s seat belt or even allowing the children to play around in the car without any protection. It would be much wiser to take a break during the trip and allow the children to play and keep their spirits up.

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Driver assistance systems can be a source of distraction

DEKRA Road Safety Report 2023 "Technology and People"

"Technology should not be a distraction or a burden"

The car is currently in the throes of what may well be the greatest revolution since its invention. Software and electronics are taking over more and more tasks from the driver, turning cars into rolling high-tech machines. "Modern assistance systems can prevent many accidents or at least minimize the consequences. However, these automated driving functions also lead to new problems," explained Jann Fehlauer, Managing Director of DEKRA Automobil GmbH at the presentation of the DEKRA Road Safety Report 2023 "Technology and People".

Fehlauer explained that despite all this useful technology, it is important to ensure that the driver is not distracted or overwhelmed. "The basic requirement for the use of assistance systems is that they are easy to understand for all users. Their operation should not create new risks or hazards that would jeopardize the road safety gains already made.

Jann Fehlauer pointed out that very good and reliable systems, such as adaptive cruise control and lane departure warning, tempt many road users to devote themselves to tasks other than driving. This misperception of the systems' capabilities has led to several serious accidents. Such systems could also play a critical role if a driver is suddenly overcome by health problems that go undetected.

As the level of automation increases, so does the quality of the everyday driving experience. "This is absolutely essential in critical driving situations, when an autonomous system hands control back to the driver," says Fehlauer. There is still no satisfactory answer to this challenge. Despite all the technical advances in the automotive sector, the DEKRA Automobil managing director believes that we should never forget that the acceptance of traffic rules by every type of road user is an essential safety component. "For the time being, it is and will continue to be the individual who makes the essential contribution to road safety through his or her behavior." The 2023 Road Safety Report is available online and can be downloaded at www.dekra-roadsafety.com.

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Standardized operation in the car urgently required

Road Safety Report 2023 "Technology and People"

DEKRA demands for more road safety

- **Improve information.** Motorists need to be better informed about the areas of application, the limits, and the operation of the respective assistant systems. This information must not only be available to the initial user, but also to the second and third users of a vehicle.
- **Clear Status Indications.** When a system assumes or relinquishes a driving function, it must be clearly indicated to the driver on the display.
- **Ergonomic cockpits.** Vehicle cockpits must be laid out ergonomically so that the respective information can be displayed in a clearly comprehensible manner.
- **Standardized operation.** There is an urgent need to standardize safety-related controls, regardless of manufacturer, so that drivers can quickly find their way around unfamiliar vehicles. This applies to the arrangement, operation and location of controls.
- **Exploiting existing potential.** The accident-avoidance potential of active and passive systems already available in the vehicle must be exploited more systematically. Autonomous driving is not a quick fix.
- **Check electronics.** It is important to ensure that the mechanical and electronic safety components function throughout the life of the vehicle. For this reason, they must be checked regularly as part of the vehicle's technical monitoring, e.g. during the periodical general inspection.
- **Minimizing areas of danger.** In order to achieve the "Vision Zero" goal of road traffic with as few fatalities and serious injuries as possible, danger spots must be actively detected and mitigated. The requirements of modern assistance systems must be taken into account.

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DEKRA study on autonomous driving

The risks of multitasking

These days, highly automated driving functions are already capable of independently controlling a vehicle. The first of such systems, the Mercedes DrivePilot, has already been approved in Germany. This means that, under clearly defined and relatively strict conditions, motorists can devote their attention to other activities. Nevertheless, they need to be prepared to intervene in an emergency.

When taking over the driving of a vehicle from highly automated driving, however, drivers sometimes experience considerable difficulties, even if they have not previously held a part-time job. This is the result of a study conducted by DEKRA in cooperation with the Technical University of Dresden at the DEKRA Lausitzring. During test drives on the circuit, the two takeover scenarios "false alarm" and "silent alarm" were played out: One group of test subjects was tasked with following the automated drive as passive monitors and only intervening when they felt it was necessary. A second group was additionally asked to perform a visually demanding activity on a tablet during the automated drive.

There were significant difficulties during autonomous driving in "silent alert" mode, for example, in dangerous situations where the human driver would need to take control, but the system did not request it. For example, when you cross the stop line at a stop sign, when you gradually drift into the oncoming lane, or when you suddenly swerve to avoid an obstacle in front of you. It was noticeable that even some drivers who were not engaged in any other activity had considerable difficulty taking control of the vehicle. Depending on the situation, between 58 and 59 percent of the tablet group were unsuccessful in a "silent alarm". But even among those not engaged in any activity, the percentage of those who failed to take control of the vehicle was surprisingly high, ranging from 24 to 61 percent.

In contrast, the "false alarm" scenario, i.e. a warning without a critical situation, did not cause any problems for any of the groups in taking control of the vehicle. However, they took an unexpectedly long time to do so. While other studies show a time of 0.83 seconds, here an average of 2.44 seconds was recorded. DEKRA believes that the study once again underscores the fact that multitasking is risky when the driver has to take control of the vehicle. Carrying out another activity while driving autonomously makes it extremely difficult to detect system errors and react quickly enough to deal with the situation appropriately (information: www.dekra-roadsafety.com).

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Only an age-appropriate retention system provides safety

Holiday driving – four mistakes that can have consequences

Securing children correctly in the car

A child's urge to move about and play is severely restricted on lengthy car journeys. Sooner or later, this will be reflected in a child's mood. However, DEKRA experts warn motorists not to react to these situations by loosening the child's seat belt or even allowing the children to play around in the car without any protection. It would be much wiser to take a break during the trip. Let the children play and keep their spirits up. The experts warn against the following mistakes:

Driving with children on your lap – No! In an accident, the adult does not have nearly enough strength to hold the child in place. In the event of a collision, the child will hit the dashboard, windshield or seat back with full force. In addition, there is a risk that the child will be trapped between the airbag and the adult. Serious injury to both is unavoidable.

A deadly risk for children. If an adult and a child are restrained with a single belt, the child can be crushed between the adult and the belt. Restraining two children with a single belt is equally dangerous. In the event of an accident, the children's heads can be struck together, causing serious injury.

Securing children under 150 cm with an adult belt – No! Important: Children should always be restrained with an age-appropriate restraint system. It is not uncommon for the belt to pass under a child's arm in order to prevent the belt from rubbing against the child's neck. Three-point harnesses should generally be positioned over the shoulder and close to the body. Too much "wobble room" reduces the effectiveness of the belt and greatly increases the risk of injury.

Driving with the children unsecured – No! If a child is standing between the front seats, a sudden braking maneuver is sufficient to hurl it against the dashboard and sustain serious injuries. In an accident at 50 km/h it would impact the rear of the front seats or the dashboard with the same force as if it had fallen from the fourth floor of a building. Moreover, it can be ejected from the vehicle and be run over. It is an absolute no-no to transport a child prone on the rear seat. A simple evasion maneuver or braking action can lead to the most serious of injuries.

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DEKRA Survey: One in three cyclists feels unsafe

About one third of cyclists in Germany feel unsafe or even very unsafe on their bike. This is the result of a recent survey conducted jointly by the expert organization DEKRA and the market research institute Ipsos. On country roads, a total of 30 percent of those surveyed have an unsafe or very unsafe feeling. In urban traffic, the proportion is slightly higher at 36 percent. In order to cycle more often, many respondents want more cycle paths (city / highway: 48.5 / 46.5 percent), and wider cycle paths (city / highway 41.6 / 36.6 percent). More than one third (37.7 / 38.5 percent) were in favor of a general decoupling of cycle paths from the road network, as is mostly common in the Netherlands. From the point of view of some of the respondents, the quality of cycle paths also leaves a lot to be desired.

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Out of position: A relaxed seating position can lead to injury

Sitting in a car in a too relaxed position is dangerous. Biomechanics expert Andreas Schäuble of DEKRA Accident Research warns: "If you put your feet up on the dashboard, for example, you can expect serious or even fatal injuries in the event of an accident. If the airbag were to deploy in this "out of position" posture, the passenger's legs would be thrown backwards in a fraction of a second. At the same time, the pelvis would slip out from under the seat belt, preventing the belt from providing maximum protection. The accident expert reminds readers that car occupants enjoy the full protection of airbags and seatbelts only when they are sitting in the normal upright position. Other seating positions, such as twisted, leaning forward or with the feet raised, pose a high risk of injury. For effective crash protection, the seat belt must always be worn, even in vehicles equipped with airbags, as the two systems work together. The seat belt must be positioned close to the body and the head restraint correctly positioned. The top edge of the belt should end approximately at the top of the occupant's head.

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