

## Press Release

Findings from the DEKRA Road Safety Report 2023

# When Technology Overwhelms Drivers Instead of Helping

- Study with test subjects shows difficulties in modern vehicle cockpits
- Today's operating concepts often require intensive training
- Standardization of safety-relevant operating functions indispensable

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**The ongoing digitization of society has long since reached vehicle cockpits. Whereas just a few years ago physical (rotary) switches and buttons with haptic feedback were used for interaction between driver and vehicle, in modern vehicles touch displays and touch-sensitive buttons predominate. The crucial question in this context: Does this development possibly lead to an increased risk in road traffic? It is not uncommon for controls to be hard to reach if they are hidden somewhere in the menu. Searching and finding them creates distraction – especially in vehicles with which one is not familiar. “This danger definitely exists”, warns DEKRA traffic psychologist Dr. Thomas Wagner. For the DEKRA Road Safety Report 2023 “Technology and People”, which takes a closer look at numerous problem areas in the human-machine interface, the expert organization conducted, among other things, a study with test persons in different cockpits.**

In recent years, the number of functions that can be operated in vehicles via touchscreens has continued to increase as development has progressed. In addition to classic functions such as operating the navigation system or using the media, some manufacturers now also allow controls such as the air conditioning or even the windshield wiper to be operated via touchscreens. “In principle, innovative touchscreen technologies with intelligent user guidance reduce the number of incorrect entries and the input times, which at the same time can minimize road safety risks, for example due to distraction”, says DEKRA expert Dr. Thomas Wagner.

That, however, is only one side of the coin. The lack of haptic feedback on touchscreens in modern vehicles can also increase distraction time because it is usually necessary to look at the screen for longer. The traffic psychologist sees another problem in the fact that each manufacturer defines for themselves what intuitive user guidance looks like for vehicle operation via touchscreen. As a result, he says, there are considerable differences in terms of menu navigation and

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naming. “When one drives vehicles from different manufacturers, such as when using rental cars or car sharing, problems are inevitable”, says Wagner.

### **DEKRA study with test subjects reveals pain points**

To show what challenges modern operating concepts pose in today's vehicles, DEKRA Accident Research conducted a test in which 80 people were confronted with safety-relevant operating tasks in two test vehicles. Two generations of a model with high sales and registration figures in Germany were selected as examples. This ensured that the test subjects were not confronted with two completely different operating philosophies. The two test vehicles had an age difference of ten years (model years 2012 and 2022). The tests were conducted while the vehicle was stationary with the ignition switched on.

Tasks to be mastered included switching on the windshield wiper, windshield ventilation, radio, rear window defroster, low beam headlights and fog lights. The results showed that the test subjects in the newer vehicle needed much more time on average for all the tasks – in some cases more than twice as long. If the respective operating task could not be solved within 30 seconds, the test was aborted. This was the case for significantly more test subjects in the newer vehicle.

### **Safety-relevant functions must be intuitive to operate**

Overall, the majority of test subjects were confused by the operating concept of the newer test vehicle. The reaction time of the touch display and the touch-sensitive buttons were complained about, as was the lack of haptic feedback, especially of the sensitive buttons. The learning effort that the new operating concepts require from drivers is considered by the test subjects to be quite high – especially for older people. For drivers who wear reading glasses, the modern operating concept can also pose a safety-relevant problem. Without these glasses they cannot recognize the controls, but with them they can no longer follow traffic because they can see practically nothing at greater distances.

According to the DEKRA traffic psychologist, vehicle manufacturers and developers are facing a major challenge: “On the one hand, operation should be as intuitive as possible, while on the other hand time more and more functions and setting options must be accommodated in the operating concept.” There is therefore an urgent need for manufacturer-independent standardization, especially of safety-relevant functions, regarding the arrangement, location and handling of the respective elements in the vehicle cockpit.

“These functions must be easily adjustable by means of conventional controls with haptic feedback – also with regard to a possible failure of a touchscreen”, Wagner demands. The DEKRA expert also thinks a kind of “seal of approval” for low-distraction design solutions based on limit values that could be derived from an evaluation scheme with relevant test points would be worth considering. In this context, he also believes that the further development of voice-controlled functions as an example of low-distraction design solutions still offers a lot of potential.

Further background on the topic as well as on the changing interaction between technology and people in modern traffic in general can be found in the DEKRA Road Safety Report 2023, available at [www.dekra-roadsafety.com](http://www.dekra-roadsafety.com).

### **Captions**

Cockpit 1: The tests conducted by DEKRA Accident Research with 80 people have shown considerable difficulties in dealing with the operating functions in the modern vehicle cockpit.

Cockpit 2: In many vehicles, the switch for the hazard warning lights is located in the center of the cockpit – but not uniformly in all of them. According to DEKRA, standardization of certain safety-relevant operating functions is essential – especially because in times of changing mobility, more and more people are driving vehicles that they do not use regularly.

### **About DEKRA**

*DEKRA was originally founded in 1925 to ensure road safety through vehicle inspection. With a much wider scope today, DEKRA is the world's largest independent non-listed expert organization in the testing, inspection, and certification sector. As a global provider of comprehensive services and solutions, we help our customers improve their safety, security, and sustainability outcomes. In 2022, DEKRA generated sales totaling nearly EUR 3.8 billion. The company currently employs almost 49,000 people who offer qualified and independent expert services in approximately 60 countries on five continents. With a platinum rating from EcoVadis, DEKRA is now in the top one percent of sustainable businesses ranked.*