assistance overload - curse or blessing -

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SUMMARY

Growing complexity as a comfort killer

In practice, many assistance systems are still not intuitive to operate or do not act in a self-explanatory way.

The added value of an electronic assistance system is then no longer apparent, on the contrary: the system itself becomes a stress factor.

However, there are also many drivers who do not even know which electronic assistants are on board, let alone how to set them. A possible way out of this dilemma is offered by more automated driving and integrated cockpit and operating concepts. Then they actually relieve the driver. The distance cruise control then knows exactly what the lane departure warning system is doing and vice versa.

Greater automation also benefits professional drivers. Especially for drivers of trucks and vans in city centres and at depots, automated and autonomous driving functions bring huge advantages.

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DETAILS
Willingness for more technology in the car is declining

This was recently discovered by the US market research company J.D. Power. According to a recent survey, **65% of consumers** are **unable** to "correctly **define fully autonomous driving**". Moreover, there are **many drivers** "who do **not** even **know** which **electronic helpers** are **on board**, or how to **set them up**". Most people simply lack the knowledge of how a system functions in a control loop or how the interaction in the overall system works.

And because this is the case, the willingness of car drivers to use autonomous driving is very limited - indeed, it is even declining. Between the clear rejection 0 and the unreserved approval 100 for autonomous driving, J.D. Power determined an index value of only 39. Three points less than in 2021. However, this does a great injustice to engineering performance, because assistance systems are demonstrably helpful. Especially when you are distracted.

Man must understand machine

A look at the accident statistics of recent years shows that being distracted is the second most common cause of accidents. Almost 90 % of all accidents are caused by human error. Electronic assistance systems, which always keep an eye on the traffic situation thanks to various sensors in the vehicle, can effectively counteract this. This is also because modern systems monitor the driver's level of attention. Integrated cockpit and operating concepts are therefore the future.

56 metres flying blind is the risk for anyone who does not look at the road for even two seconds at a speed of 100 km/h.

The assistants help much more harmoniously when many driver assistance functions are combined. But only if an intuitive operating concept contributes to this and the human-car interface is clearly defined and clear handovers between machine and human are the prerequisite.

Usability is not the automotive industry's parade discipline

Some systems in the vehicle demand too much of the driver's attention. Some distraction times when operating various functions in the car are irresponsibly long. Anyone who sits down in a modern automobile today realises that virtually every button has been eliminated from the driver's control centre and that many functions and settings are hidden in sometimes complex menu structures. Ever since Tesla led the way with its

software-driven function activation, display-oriented solutions have been in vogue.

90 per cent of all accidents are caused by human error

After all, if you first have to laboriously regulate the seat heating on a large tablet in the centre console,

you will be distracted for several seconds. The bottom line: searching for and finding functions in digital menus and submenus often leads to long distractions. Progress can certainly lead to excessive demands here.

Risky multimedia confusion

The high number of signals and information sent out by the systems can also lead to overstrain and wrong reactions behind the wheel. The trend away from haptic feedback towards touch-sensitive screens is not the last word in vehicle interaction.

Can complexity be controlled?

While individual, detached interactions are still safe, the combination of hundreds of functions drastically increases complexity. This has fatal consequences for car manufacturers, who are already struggling with the complexity of functions and variants, and by 2025 the number of battery-electric vehicles that exist alongside conventional combustion engines will increase the number of variants per car manufacturer worldwide by 50 to 100 percent.

Complexity costs competitive advantage

Currently, a large number of OEM R&D staff are already preoccupied with variants and the associated complexity. This creates constraints on business transformation and dependencies in implementing new technologies and new business models, while at the same time new entrants in the automotive industry increase the speed of transformation.

However, if complexity can be reduced, the entire value chain of an automotive manufacturer benefits, and the earlier in the product development process a company tackles complexity.

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LIST OF SOURCES
•ZF
•Springer Proffessional
•ADAC / University Augsburg
•ÖAMTC
•Oliver Wyman
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