



## Feature

# Information burden increases pressure on truck drivers

**Modern trucks are equipped with increasing numbers of warning and safety systems designed to help the driver handle critical situations on the road. However, there is a risk that these systems might actually have the opposite effect – the driver may suffer information overload, which in turn leads to incorrect decisions. For Swedish vehicle manufacturer Volvo Trucks, this is a high-priority area.**

Marjukka Sagesjö is one of about twenty specialists at Volvo Technology working with what is known as HMI (Human Machine Interface), meaning the way in which human beings and various computerised systems interact.

“We work a lot with customer clinics, driver interviews and various other investigation and survey methods as part of our research and development process,” says Sagesjö, a cognitive ergonomist at Volvo Technology. “Among other things, we have an advanced driving simulator in which we can subject the driver to information stress and traffic incidents without risk of personal injury.”

Driving a heavy vehicle in congested traffic while hauling a valuable load, and at the same time keeping a watchful eye on the clock to meet agreed delivery times and adhere to legislated driving and rest times, can be highly stressful – not least when driving in new, unfamiliar areas. Furthermore, in recent years the truck cab has developed into a mobile office where the driver receives transport orders, text messages, phone calls and emails from customers and the traffic office – all while on the move.

In addition, today the GPS navigator, traffic information via radio, the vehicle’s in-cab diagnostic system and the driver’s personal MP3 player are all regular information sources – which may also contribute to information stress and, ultimately, impact traffic safety.

What is more, many modern trucks are equipped with a range of supplementary systems such as lane change assistance, warning for excessive speed when approaching a curve, warning for imminent collision risk, driver alertness monitors and blind spot alerts. And



more systems are under development for forthcoming truck generations. Is there a risk of information overload?

“The amount of information as such need not be a problem – that’s an individual issue. Instead, the problem is how to regulate the information flow so that the driver’s attention is not unnecessarily disrupted in critical situations,” explains Sagesjö.

Sagesjö is currently working on the development of a system known as DIS, Driver Interaction Support, whose aim is to prioritise the information that the vehicle’s various systems transmit to the driver.

“For instance, it is not a good idea for a message from the transport planning office to signal its arrival just when the navigator is telling the driver which exit to take in the roundabout he is entering. And incoming phone calls can be queued if the system registers that the driver is in the process of changing lanes,” she explains.

In other words, the focus is on getting the various systems to interact optimally to avoid distracting or worrying the driver.

“To succeed with this, the information systems fitted to today’s trucks must be integrated with tomorrow’s support systems. And that is something of a challenge,” says Sagesjö.

Volvo Trucks works closely with the Chalmers University of Technology in Sweden, for example within the framework of SAFER, the Vehicle and Traffic Safety Centre. Sweden is one of the leading nations in this area, and work has also intensified internationally in recent years. For instance, the EU Commission has directed the Union’s vehicle manufacturers, industry organisations and member states to treat this issue with the utmost seriousness.

The fact that this issue is being given high international priority has also led to Volvo Trucks taking part in a variety of research projects such as EuroFOT (European Field Operational Test on Active Safety Systems), whose aim is to produce comprehensive field data from the use of safety systems in regular everyday traffic. This is a move that Sagesjö welcomes.

“Quantitative survey data showing driver reactions in incidents involving real-life traffic are in short supply, for obvious reasons,” she says. “That is why it is a major advantage for Volvo to participate actively in EuroFOT.”

October 1, 2010

**Web-TV:**

See the TV report on Volvo Trucks' participation in the EuroFOT project:

<http://www.youtube.com/watch?v=livi6RyU2ys>

**Captions:**

T2009\_1645:

Driving a heavy vehicle in congested traffic while hauling a valuable load, while at the same time keeping a watchful eye on the clock to meet agreed delivery times and adhere to legislated driving and rest times, can be highly stressful. Furthermore, in recent years the truck cab has developed into a mobile office where the driver receives transport orders, text messages, phone calls and emails from customers and the traffic office – all while on the move.

T2010\_1315:

The illustration shows examples of various systems that the driver interacts with.

T2010\_1318:

Marjukka Sagesjö, cognitive ergonomist at Volvo's innovation specialist Volvo Technology, is currently working on developing a system to prioritise the information that the vehicle's various systems send to the driver.

“For instance, it is not a good idea for a new message from the transport planning office to signal its arrival just when the navigator is telling the driver which exit to take in the roundabout he is entering.”

**Link to pictures:**

[http://icp.llr.se/CumulusE\\_Z/VTC\\_ImageGallery/Login2.jsp?assets=T2009\\_1645;T2010\\_1315;T2010\\_1318.tif](http://icp.llr.se/CumulusE_Z/VTC_ImageGallery/Login2.jsp?assets=T2009_1645;T2010_1315;T2010_1318.tif)

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