

Inside information

Assuming we can find enough of them, what will tomorrow's truck drivers want from a next-generation dashboard display? Brian Weatherley finds out

Designing tomorrow's trucks is all very well, but before European operators can embrace the brave new world of automation and connectivity, first they've got to overcome the far-more pressing problem of finding enough drivers to sit in the vehicles they already have.

Mercedes-Benz estimated the professional driver shortage in Germany at about 45,000 and growing, at its recent 'FutureLab' symposium, held at the manufacturer's massive Wörth, Germany assembly plant. In Britain, similar figures are frequently quoted.

Regardless of where they eventually come from, and how much actual driving they end up doing, any new recruit raised on an electronic diet of social media, touchscreen interactivity and video gaming will expect a totally different kind of user interface (UI) in their truck than the ones found in today's vehicles. So the Design Inside Out workshop within FutureLab helpfully provided the clearest hint yet as to what that might look like, while confirming that its creators are also just as likely to come from the burgeoning world of computer animation and video gaming as traditional automotive design centres.

But how do you go about creating the dashboard of the future? Alexander



Graf from Mercedes' department of digital graphic design realisation explains: "At the beginning, we have an initial draft [sketch] version for the UI – so basically we try to comply with the legal requirements, the specification, what needs to be shown on a display, and how can we place and position things on it. Then, using Photoshop, we make a 2D picture of that."

However, 2D pictures aren't particularly flexible from a designer's perspective, so those initial renderings are quickly turned into a more dynamic 3D 'on-screen' version, which is where the computer animators come in. In terms of what information a 3D display could provide, the sky is pretty much the limit. "In 3D [modelling] it's very flexible,

what you can see, regardless of the size of the screen or the aspect ratio. In the end I can use the design for several generations of UI," Graf confirms.

As an example, he showed an attractive future dash display with two digital dials (more accurately 'quadrants') consisting of a conventional rev counter and speedo on either side of the screen. The central area, however, was filled by a rolling animated view of the road ahead that disappeared into an artificial horizon. The next step, says Graf, "is to see what the UI looks like when it's moving, because it's not just static. Sometimes we have simulations to give us an idea of how the pointer moves in the dial, whether it's readable, if there's too much distraction, or if the contrast is okay. Could the centre section also be interactive? Does it show the reality out there?"

The animated central 3D landscape digitally replicates the road ahead, rather like a sat nav, but with some subtle



ACTIVELY DELIVERING SAFETY

In its 'Active Accident Avoidance' workshop at FutureLab, Mercedes confirmed that between 2006 and 2016 it developed no less than four versions of its autonomous emergency braking system (marketed as Active Brake Assist), each with improved performance. Rear-end collisions still account for almost 40% of all injury-resulting accidents involving at least one CV, whether truck-on-truck or truck-on-car. As over half of those collisions occur under braking, ABA has a major role to play in reducing rear-end shunts, points out Kay Morschheuser, head of commercial vehicle accident analysis and safety strategies at Daimler AG.

Merc's latest Active Brake Assist 4 can now also detect pedestrians crossing the road up to 80m in front of the truck, with the automatic warning and braking reaction of the system effective up to speeds of 50kph. If a driver doesn't brake firmly enough, ABA4 actuators supply the extra amount required. Similarly, its recently launched Sideguard Assist system can also alert drivers to the presence of a cyclist in the classic nearside front blind spot, as well as the risk of collision when turning. Mercedes-Benz UK confirms a RHD version is being developed.

additions. For example, it can simulate a vehicle passing alongside the truck, gradually appearing from the bottom of the screen before accelerating away towards the horizon. Such a feature could form part of a blind spot detection system, alerting a driver to their proximity.

Another animation opportunity is what Graf calls a traffic sign 'recognition assist', whereby an approaching warning sign (like a reduction in the speed limit) is flagged up to the driver in the animated roadscape as the truck approaches. However, the sign then remains on the screen, even after the truck has passed the real thing, so it can't be forgotten or ignored by the driver.

There's another intriguing element of the digital dash, too. "We not only have intelligence here, but emotion too," Graf says. Giving the artificial horizon a 'calming' graduated blue tint suggests to the driver there's nothing concerning ahead. However, changing it to red immediately flags up an approaching hazard. Once passed, the blue background returns, allowing the driver to 'stand easy', while still remaining alert.

The designer insists that the secret of good digital design is to not overload the driver with signals. "We don't want to have too much distraction. It [the system] has to be double-checked with engineers, and our functional colleagues. This is how we approach the design concept."

Other ideas for a future dash could include the use of a single, easy-to-reach touchscreen, either built into the dash or as a removable tablet computer with a docking station, capable of handling various operating functions. Alternatively, the UI might feature a heads-up display.

Meanwhile, Kai Sieber, Mercedes-Benz's director of design brands and operations, argues in favour of mass personalisation. "We understand [that] the availability of the vehicle is decisive - only a truck that's on the road is earning money - so for us it's important that every Mercedes truck driver has a Mercedes ID, and with this we can personalise the settings so no time is wasted setting up the screen, and its contents will be automatically uploaded with the driver's ID. Basically, what we will offer is a digital assistant to our customers that takes over many

tedious work functions from the driver's workload - that's the additional value of what we're offering."

Surprisingly, the time needed to develop a digital dash is relatively short. "90% doesn't take too long to develop," Graf says - from weeks to a few months. However, completing the final 10%, which covers making sure the design works on all parts of the screen, including the edges and corners, takes longer. "All this needs to be considered," he says, adding: "That's when we're talking about complexity."

So when might we see a digital display with the above UI features in a truck? Sieber suggests it will arrive in the period 2030-2035. But regardless of what a future Mercedes dashboard might look like, and how drivers will use it, Graf insists they'll always have all the information they need, whenever they need it. [TE](#)

CONTINENTAL SHOWS OFF FUTURISTIC BUS COCKPIT VISION

At an IAA show preview, Continental showed a prototype modular cockpit for buses. Because of the small production volumes in this market, many European OEMs buy in the driver's station for buses and coaches as proprietary assemblies. The Modular Driver's Workplace can easily be switched for left- or right-hand drive vehicles. One major British manufacturer

is already in discussion with Continental.

Analogue instruments are replaced by a versatile 12.3in thin-film transistor (TFT) LCD central screen. This can be switched to display the most important information for the use to which the vehicle is being put. In motion, speed and navigation data is displayed, but at bus stops, the screen switches to show the views

from the door cameras. If reverse is engaged, the screen shows the image from the reversing camera. There is also a special screen showing battery range and charge state for electric vehicles, as well as a small heads-up display.

At IAA, Bosch is also presenting a CV digital instrument cluster with dynamic animations.

-Richard Simpson