

## Ford Europe Shows off 3D Cave

Written by Marco Attard  
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Rather than building expensive prototypes of new cars, Ford uses a **3-D CAVE** for exploring the possible details of new car.

“We can now conjure up a car in the digital world, and then actually get in and experience it,” says Michael Wolf, virtual reality supervisor, Ford Europe.

Engineers using the **3-D CAVE in Cologne** sit in a virtual car interior as vehicle 3-D simulations project onto the ceiling and three surrounding walls. Wearing special polarising glasses and monitored by a motion-detecting infra-red system, the engineers can interact with the virtual vehicle.

The CAVE uses an animated external environment with pedestrians and cyclists to help engineers assess visibility of the outside world from inside the car. It also enables engineers to access and compare at the push of a button multiple designs – including vehicle interiors produced by other manufacturers. Ford’s CAVE in Cologne is supported by an identical set-up in Dearborn, U.S., and further single-wall facilities make it much easier to move prototypes around the world.

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For the Ford Focus, as an example, Ford used the CAVE to optimise windscreen wiper effectiveness; to maximise roominess for rear passengers by testing designs for the front seats and headrests; to evaluate door frame design impact on visibility; and to minimise reflections that can affect the view through windows and of information displays.

Ford is now investigating incorporating controls that operate the in-car entertainment system, open and close windows, and provide advanced driving simulations. Real-time global illumination scenarios could allow engineers to analyse how interior lighting and reflections change through the course of the day and according to changing weather conditions.

“The CAVE makes it so much quicker and easier to analyse designs,” says Wolf. “For example, to manufacture three different front pillar design examples and fit them to a prototype vehicle could take 10 days. The same project could be completed in just one or two days using our virtual reality simulator – and also saves physical resources.”

Watch [Inside Ford's 3D CAVE](#)

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