

HOW TO IMPROVE PEDESTRIAN ACCEPTANCE OF CONNECTED AND AUTONOMOUS VEHICLES (CAV)

The answer comes from PAsCAL Project's Immersive Arena

Many pedestrians do not trust autonomous vehicles: they fear that, towards them, this type of vehicle will not behave in the right way.

This is the result of **Immersive Arena** analysis of Workpackage 4 (WP4), part of the **PAsCAL*project**. (link to the website www.pascal-project.eu) a series of experimental activities dedicated to evaluate pedestrian acceptance and behaviour in front of connected and autonomous vehicles (CAVs).

Inside the Arena- 12 75" vertical screens building a full 360° display-wall with 2m height, 3.6m diameter and a resolution of 13400x1920 pixels- multiple subjects can stand and move. Cameras are installed to record experiments and to adapt the simulation depending on the subjects' behaviour.

The video (<https://vimeo.com/500339005>)

Two methods were used to define the experiment scenario:

- Selection of the different eHMIs (The external human-machine interface: the interface between the autonomous machine and man) proposed by manufacturers or in the scientific literature, with particular attention to visual eHMIs.
- Organisation of two focus groups to collect pedestrian habits. The focus groups were held twice, with a total of 14 participants.

Two focus groups were organised during April, by Visio conference due to the sanitary context, with two groups of seven persons each.

For the first focus group, the Proposition Value Canvas method has been used, a tool that helps to identify the real needs of pedestrians when they are crossing a road, in order to relate them to the value proposition, which, in this case, corresponds to CAVs.

The second focus group was focused on interactions between CAVs and pedestrians during a road crossing.

Afterwards, participants were asked to give their opinion on the risks and benefits of introducing CAVs, but also to indicate what might help them to see CAVs as reliable vehicles.

Thanks to this experience, some categories of eHMIs have been eliminated like the anthropomorphic. Furthermore, the preferred eHMIs were selected and combined with different requirements to propose new composed eHMIs

**PAsCAL- acronym for "Enhance driver behaviour and Public Acceptance of Connected and Autonomous vehicles" is an European project aimed to develop a multidimensional map of public acceptance of higher levels of Connected and Autonomous Vehicles (CAV), pointing out any critical issues on the matter, particularly investigating the new "driver" needs considering different modes and mobility services. PAsCAL's goal is to create a "Guide2Autonomy" (G2A), a set of guidelines and recommendations aimed at accelerating the user-friendly evolution of connected automated vehicles and transport systems.*

Flyer

(https://www.aci.it/fileadmin/documenti/ACI/Iniziativa_e_progetti/PAsCAL_Flyer_2020_bis.pdf)



The project has received funding from the the European Union's Horizon 2020 research and innovation programme under grant agreement number 815098
