# D9.1 Report on vehicle survey operator needs

*Interview with Alessia Giorgiutti*

A key goal of the system that is under development in the i-DREAMS project is to support drivers to stay within a Safety Tolerance Zone (STZ). Components being developed for this purpose are, on the one hand, real-time interventions in the vehicle (based on real-time measurements of parameters related to vehicle, driver and environment) and, on the other hand, post-trip interventions (e.g. personalised feedback and tips, but also gamification features such as goals and digital rewards in the form of badges). When developing such a system, it is important to respond to the needs of the relevant stakeholders of the different modes under investigation (i.e. cars, buses, trucks, trains and trams). To identify these needs, a survey was conducted among transport experts. Through the survey, the experts expressed the needs and requirements they have regarding technology to help improve road safety. This report also provides important input to the User Advisory Board that assists the project team in developing, testing and validating the i-DREAMS system.

**Alessia, can you explain what the exact goal of the survey was?**

ALESSIA GIORGIUTTI: *"In order to understand how the i-DREAMS system could best address the problems leading to accidents, a survey was required to capture experts' opinions of the main issues leading to accidents and the barriers which experts think require overcoming to successfully integrate the system into everyday lives of drivers. In other words, the survey aimed to capture what industry experts for various transport modes thought were the main accident types, the reasons behind these accidents, how technology might be able to help reduce such accidents and their personal experience with technologies, both current and concept designs."*

**How did the survey come about?**

ALESSIA GIORGIUTTI: "*The survey was developed by a team of researchers from Loughborough University, UK, with experience in human factors/ergonomics in transport and issues related to driver status. The survey consisted of 17 questions and is a mixture of open, closed and ranking questions. It was important that the questions were relevant to all transport modes (cars, trains, trams, trucks and buses/touring coaches), which increased the complexity of the design. Before the questionnaire was rolled out, several rounds of feedback incorporated input from the consortium, which was finally approved for distribution by Loughborough University's ethics committee."*

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**Who completed the survey?**

ALESSIA GIORGIUTTI: *"The survey was forwarded to relevant contacts of the consortium. In addition, the survey was also made online available and directly accessible via the i-DREAMS website. A built-in Twitter handle enabled easy dissemination via social media. The survey was open for a full month. In the end, the survey was completed by 103 respondents, most of whom (37) were academic and commercial researchers. In addition, 20 operators, 8 policy makers and 14 other (e.g. consultant, lawyer, public transport made them … but if you are interested, you can read all about it in the deliverable."*

**I read in the deliverable that experts shared their ideas on what factors have the most impact on road safety according to them. What were those factors?**

ALESSIA GIORGIUTTI: *"The fact that road safety is an important issue for the experts and that it is high on their agenda is beyond doubt. But in the survey, the role of technological developments and automation is also explicitly endorsed. For the car mode, collisions with vulnerable road users (pedestrians/cyclists/motorcyclists) were indicated as one of the main issues. Vehicle control, tailgating and failure to give way were identified as the main factors that would lead to this. For heavier motorised transport (buses and trucks), rear-end collisions appeared to be the biggest issue. Loss of control of the vehicle, sudden braking, and missed signals (SPADs[1]) were indicated as the main causes here. Passenger behaviour was also indicated as a risk factor for buses, but to a lesser extent. Specifically, for trucks, tailgating was indicated as a major cause. Excessive speed appears to be a significant risk for all modes. This is not surprising, of course, as it makes it easier for drivers to lose control of the vehicle, require a longer distance to come to a stop, deviate from their lane more quickly or even roll-over. And the role of driver distraction and fatigue was also identified by almost all experts as a major risk. It affects reaction time, vision quality and overall judgement."*

**Did the experts give any indication as to what technologies they believe is necessary to tackle these issues?**

ALESSIA GIORGIUTTI: *"Of course there is already a lot of technology in a lot of vehicles. Experts confirmed this. Nevertheless, for almost all modes, it was indicated that there is a big interest in technologies that can take over from the driver at some point (e.g. automatic emergency braking and speed limiters) and in technologies that warn the driver of upcoming danger (e.g. reversing cameras, detectors that signal lane deviation, warn when there is an insufficient distance from the vehicle in front or when speeding). The latter, of course, falls entirely within the scope of i-DREAMS. The technologies of most interest were those that monitor the driver's state (e.g. attention/distraction control and fatigue monitoring) and systems that warn in case of imminent danger (e.g. blind spot monitoring, monitoring for SPADs...). Technologies that were not found interesting are privacy and driver-invasive systems such as physiological monitoring."*

[1] SPAD (Signal Passed At Danger) is when a vehicle passes a stop signal when not allowed to do so.

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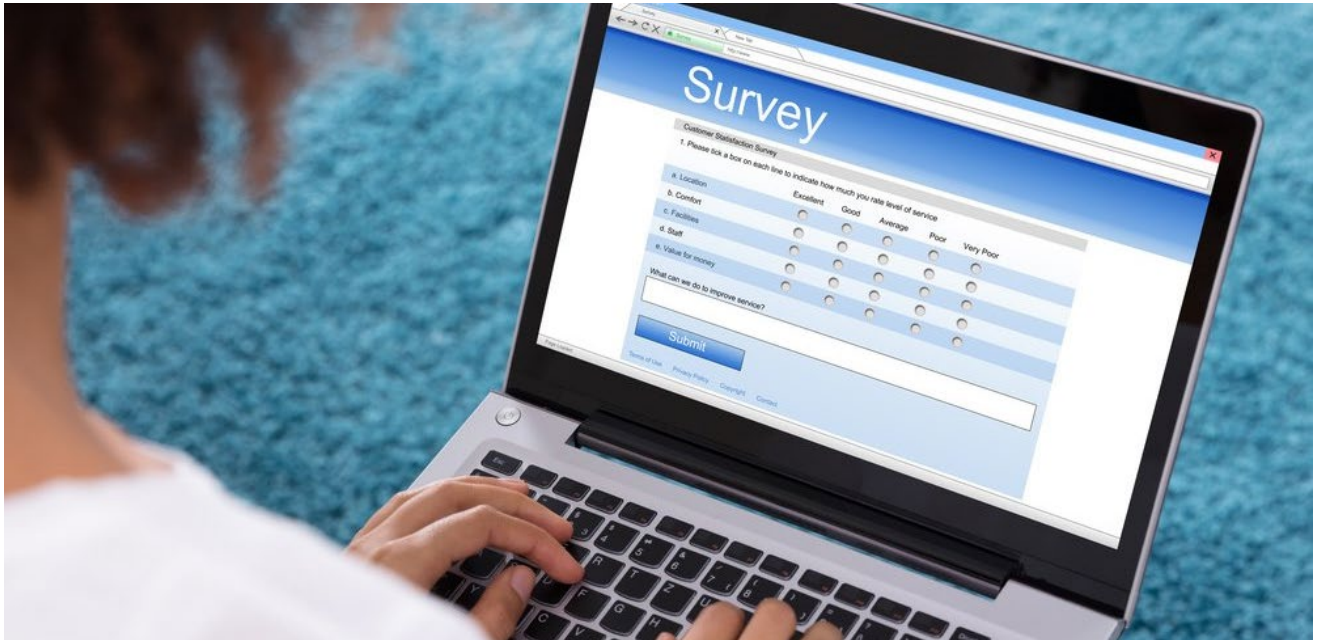
**Were there any specific safety issues specified for rail modes and any specific technologies mentioned to tackle them?**

ALESSIA GIORGIUTTI: *"We did look at these two modes separately from the others, since they are a bit specific and since only 5 of the experts that completed the questionnaire did this for rail modes. Although a head-on collision would be the greatest risk of injury, trains and trams travel on the tracks behind each other: therefore, rear-end collisions pose a greater risk when the safety systems of trains and trams fail. However, head-on collisions were the second most important type of collision along with collisions at junctions/intersections.*

*Besides collisions, the main safety violation for trains and trams was passing signals at danger (SPADs). Inattention and distraction appear to be the main causal factors. Possible solutions to prevent SPADs included automatic intervention on vehicle movement (= not in the scope of i-DREAMS), as well as timely warnings to drivers and tips to drive more safely/comfortably (= in the scope of i-DREAMS). There are already many technologies used in the industry to address these issues, but according to the experts, there is definitely potential for i-DREAMS in technology to monitor fatigue and attention/distraction and in technology that gives information on driving style. Driver and union involvement, as well as cost, are seen as the main potential stumbling blocks. With regard to technology to provide post-trip interventions, potential was seen in positive reinforcement, fact-based suggestions and feedback, rewards and gamification."*

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**What were the main pieces of advice provided by the experts that completed the survey?**

ALESSIA GIORGIUTTI: *"The experts warned us about potential driver distrust and aversion to monitoring technologies. According to them, influencing driver attitudes and behaviour towards road safety technologies should always start with allocating time and resources to put drivers at ease and engage them in the transition and integration of technology systems. Moreover, attention should be paid to the potential distractions that such technologies might cause. As for post-trip interventions, experts do see merit in working with rewards, positive reinforcement and fact-based feedback and suggestions.*

*It is considered important by the experts that i-DREAMS identifies best practices on advanced driver assistance systems (ADAS) to address road safety, but also shows how national, regional and local governments can effectively cooperate with the private sector to introduce road safety technology, transfer knowledge and promote broad public education."*

Thank you for your time Alessia!

Edith Donders

i-DREAMS DisCom manager

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**Deliverable 9.1 is part of WP9:**

***Stakeholder consultation and dissemination***

Download the report here

# i-DREAMER in the spotlight

## ALESSIA GIORGIUTTI

Graduated as *Doctor of International Relations and Diplomacy in 2017*

Employed at *POLIS since 2019*

Passionate about *Transport: Public engagement, Transport Justice, Equity, Accessibility, and active mobility. - Personal: 70's psychedelic rock and collecting vinyls, drinking any type of coffee (no milk, no sugar) while reading a good book, literally visiting any place of worship I stumble upon (I am a big fan of sacral architecture).*

Tasks in i-DREAMS: *Supporting the dissemination of project results via policy recommendations and briefs, as well as covering the work with the i-DREAMS User Advisory Board*