ToTS Volume 10, Issue 2: pg3–pg4
Palacky University in Olomouc

Editorial

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Transport experiences similar disruptive changes as can be found in other sectors, like IT and robotics. The biggest change, that can be made in the next decades is the shift from manual driving to automation or even autonomy of cars and car-like vehicles. According to many experts, this new technology can gradually through several levels of automation evolve to be better than human drivers. This could help transport by reducing traffic accidents and congestions. It could also help those people who cannot drive easily or at all and provide the possibility of dealing with different tasks instead of driving. Now at the very beginning of the second decade of the 21st century the automated vehicles (AV) are in the phase of prototypes and proofs-of-concept with the first commercial applications like UBER. Based on field data and analyses we can see that the first applications significantly worsen congestions and increase vehicle miles travelled. This shows us that there is still a long way to the state in which automation will provide satisfactory results. On this way a lot of research is still necessary, mainly on the side of human factors, as the interaction between humans and automated technology or their opinions and expectation will greatly influence the way in which technology will transform into practice.

Following this link, the first article in this issue deals with the impact of automation on the communication between road users. The next paper focuses on communication between road users with the help of external human-machine interfaces. The next two papers deal with beliefs and opinions connected with automated vehicles and the last article closes this topic from the sociological perspective with a focus on gender and age.

In the first article, Chaloupka and Risser made expert interviews. They tried to answer the question how communication between different road users and motor vehicle drivers will happen and how it might develop, with more automated vehicles in the traffic system. The experts predict both improvements and problems concerning future traffic under the influence of increasing automation. First, the focus should be on avoiding problems in densely inhabited areas. The public space should stay for people and if we do not want them to become an area for robots only, road users should be well informed and familiar with the technical possibilities of automated cars. Furthermore, drivers should be able to handle automated cars expertly and safely.

A closer look at communication was also taken by Hensch and colleagues. Based on interviews with 173 pedestrians and on behavioural data from 1500 pedestrians they investigated the effects of three different light signals, presented by a light bar placed on the test vehicle's roof as a form of an eHMI: automation mode, starting mode and crossing mode. Hensch showed that participants felt significantly safer during the interaction with the vehicle when a driver was visible. Participants considered the light signals as eHMIs for AVs as useful but also as unintuitive (when there was no prior knowledge) and there was no difference between the situations with and without light signal regarding head movements towards the vehicle. The authors conclude that the use of such signals is promising but they have to be introduced to the public before they will be used in practice.

Martí-Belda and her colleagues dealt with the opinions of end-users with the aim to investigate their beliefs and expectations. They took a closer look at learner drivers when they surveyed 138 Spanish driving students about autonomous driving with the help of an online questionnaire. Their results show that almost 80% of learner drivers imagine autonomous vehicles as being able to travel alone, but only 40% thought that this is a very useful system and only 21% would consider buying it. Three quarters preferred to drive by themselves. The authors also showed that the public may be interested in information related to the individual and societal health benefits of autonomous vehicles.

In the Czech Republic, Gabrhel and colleagues had a similar focus as in Spain. They used a survey

to study the Czech public's perceptions and attitudes relevant to policymaking in the area of connected and automated vehicles (CAVs). Only 40% of the respondents had a positive view at CAVs, but half of the respondents thought that wide usage of CAVs will enhance traffic safety. Older people, lower educated ones or those with a lower household income showed more negative attitudes. Gabrhel and colleagues recommend starting implementing CAVs in a more structured and controlled environments such as on airports or in metro systems.

In the last paper Havlíčková and her team focussed on the general attitude, the level of awareness and the preferred ways of gaining new information about CAVs. They began with focus groups to cover preferred media channels for obtaining new information on CAVs. The following step was a survey that was focused on perceptions and attitudes related to CAVs among the general population in the Czech Republic. Their results show that women declared more neutral and negative attitudes towards CAVs in comparison to men, regardless of age. Furthermore, men declared higher CAVs awareness than women in all age groups. Young men had the highest willingness to receive new information about CAVs, whereas senior women had the lowest.

Results of the papers from this issue showed that research of communication and interactions between AV/CAV and other road users, especially VRUs, is one of the crucial topics connected with the implementation of automated or driverless cars. All road users need first of all reliable information. Seniors and women should be addressed more intensively as they have more negative general attitudes and they are more present in the public space outside cars, especially in densely inhabited areas. For better and safer on-road communication light signals can be used, the content of general informational campaigns should focus on the health impacts of AVs/CAVs. It should be taken into account that even the new generation of drivers still prefer to drive by themselves much more than to use an autopilot.