

Road traffic in 2020

Tore Tennøe, Norwegian Board of Technology

300 people die each year on Norway's roads. In response, Norwegian authorities have recently launched an ambitious 'zero vision' to drastically reduce the number of road accidents. An important element of this vision is a shift of focus from the driver to the interplay between the driver, the vehicle and the road.

Technological developments could make a major contribution to increased road safety. Examples include:

- Intelligent speed adaptation. The car's computer is programmed with an electronic map on which speed limits for every road are recorded. A GPS is able to pinpoint the location of the car and, where the driver exceeds the speed limit, action is taken. This action could mean simply alerting the driver that the speed limit is being exceeded; or automatically making it more difficult for the driver to press on the accelerator; or removing speed control from the driver altogether so that it is not possible to exceed the speed limit.
- Adaptive cruise control. Laser or radar systems make it possible to programme a specific distance between a car and the next vehicle. The car automatically regulates its speed and distance accordingly.
- Extra senses: lane keeping, collision warning and night vision. Sensors within the car warn the driver, or take control, if the car crosses into another lane. Similar action can be taken where visibility is poor in bad weather or at night and risk of a collision is identified.
- Head-up-display. Traffic information is projected onto the front windscreen, so that the driver can read while driving.

These technological possibilities raise many questions about technological control, vulnerability and privacy. To inform Parliament of the views of the public on these issues, the Norwegian Board of Technology organised a scenario workshop involving experts, decision-makers, interest groups, companies and road-users. Four related scenarios concerning the car, the driver, the road and the organization of the traffic system were developed by an expert group and presented at the workshop.

In each case, the participants were shown short films that had been specifically commissioned to stimulate discussion. The aim was for the participants to be encouraged to make their own judgements on issues and contribute to the production of knowledge at the workshop. After the presentation of each scenario, the participants were asked to use diagrams to consider 'how important is new technology to increasing road safety?' and 'how important is it that the State controls the development of safer roads?' A further tool for encouraging active participation was the use of mini-debates on statements such as 'By 2020 most vehicles will have electronic support systems that control the driver, warns of risk factors and if necessary takes over the steering'.

The second part of the workshop was devoted to discussions at five round tables – one for each scenario and an extra table for "wild cards", i.e. topics that had not been covered. The participants were free to choose to which discussion groups they wanted to contribute. At every table, a freelance journalist led the discussion and made a written report of the arguments and conclusions.

Overall, the participants were comfortable with the concept of the new safety technologies but were reluctant to give up control of their cars to a computer. However, experiences with the introduction of intelligent speed adaptation in Sweden and car security technology in general, have demonstrated that acceptance increases with the use of the new technology. It is important that driving instructors introduce drivers to the new technology. Many drivers still do not know how to operate ABS-brakes or the ESP-system, several years after they became standard equipment.

There was a feeling that there could be new risks, due to system malfunction, information overload or a false feeling of security, with better cars leading to worse drivers. That the driver was responsible for her own car is thus not only a question of autonomy and, but also of security. But these new technological risks must be weighed against the lives that can be saved with the new technology. The intelligent car will probably make fewer mistakes than the driver.

Several of the participants argued that the Norwegian traffic authorities should be reorganized and that a new, separate supervisory authority should be established. Clear lines of responsibility should be encouraged. Today the Norwegian Public Roads Administration has executive as well as supervisory functions.

The scenario workshop achieved media coverage from TV, radio and newspapers. Political interest was stimulated and two newsletters, as well as a longer report, were published to disseminate the findings of the expert group and the workshop to Parliamentarians and other interested parties. The short films that were used to stimulate discussion are freely available. Finally, the benefit of stimulating a diverse group of people to think seriously about these issues should not, in itself, be underestimated.