

Automation - improving safety?

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istock photo

Background

- Automatisation of road transport is expected to have great impact on traffic safety
- According to NHTSA human error played an important role in 94% of fatal accidents in U.S.
 - Automation has been suggested to have potential to eliminate most of the severe accidents in road traffic, although this sort of straightforward thinking has also been criticised
- Human factor will remain as part of the road transport system, as long as there is at least one human in the system
- Even if the vehicle is equipped with automated driving functions, the usage will not necessarily be 100% of the time
- Hence, user acceptance of automated vehicles may be one barrier in the fast uptake of automated vehicles, even if the technology development proceeds quickly



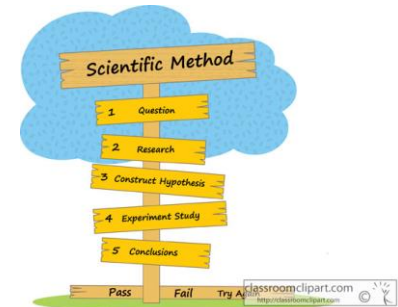
Objective

- The main aim of this study was to investigate the opinions of **Finnish car drivers** and **experts of traffic safety and automated driving** on uptake and acceptance of automated vehicles in Finland
- The most important research question: *How safe automated transport should be compared to the current traffic safety in order to be acceptable?*



Method, drivers

- Drivers' opinions were collected by an online survey
- The questions were formulated in such a way that the results can be compared to recent European and international survey results
- The questionnaire included:
 1. Background related to driving and experience on driver assistance systems
 2. Previous knowledge and personal opinion on automated driving
 3. Own rating of safety of various modes currently, and if having self-driving vehicles in operation
 4. Benefits and concerns related to self-driving vehicles
 5. Expectations on traffic safety with self-driving vehicles
 6. Willingness to have and pay for a self-driving vehicle
 7. Technology adoption



Method, experts

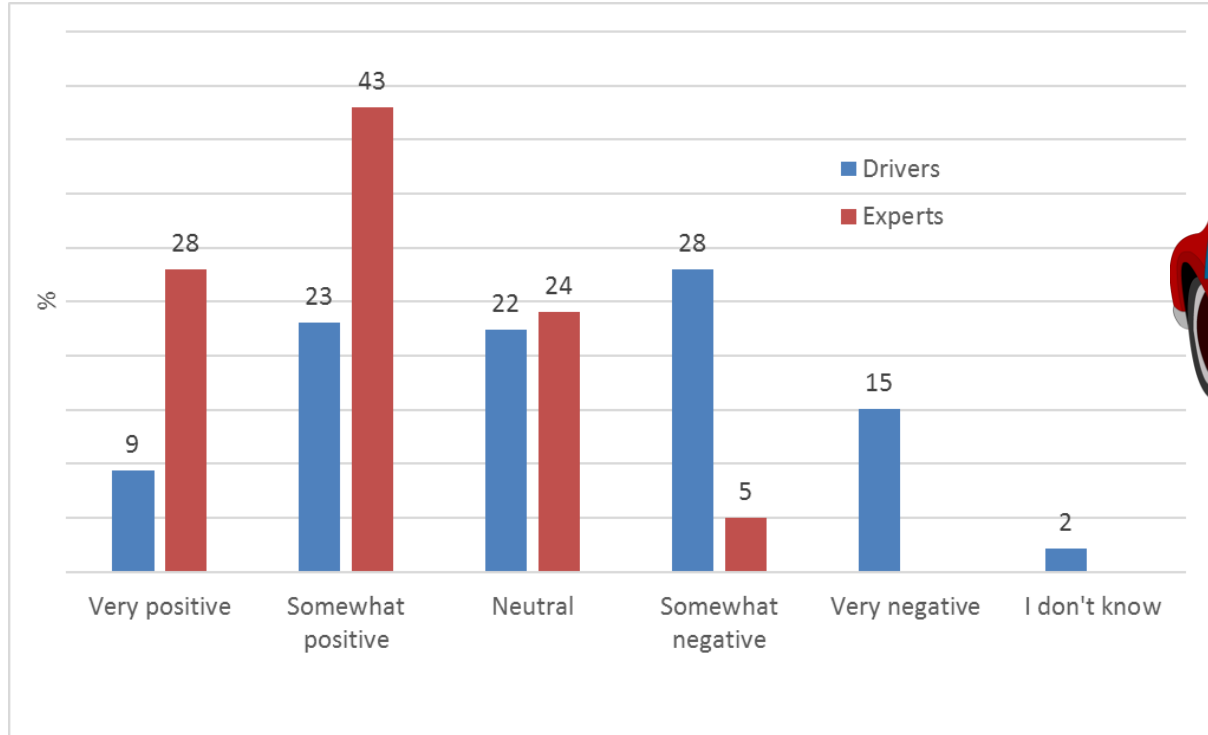
- The experts were approached by email and by providing them with a link to a Webropol survey
- The experts were selected to represent both traffic safety and traffic automation, and they worked in relevant ministries, authorities, research organisations and universities
- The expert survey included a subset of the questions presented to the drivers
- In addition, the experts were asked to indicate when self-driving vehicles would have remarkable impact on traffic safety in Finland

Driver sample

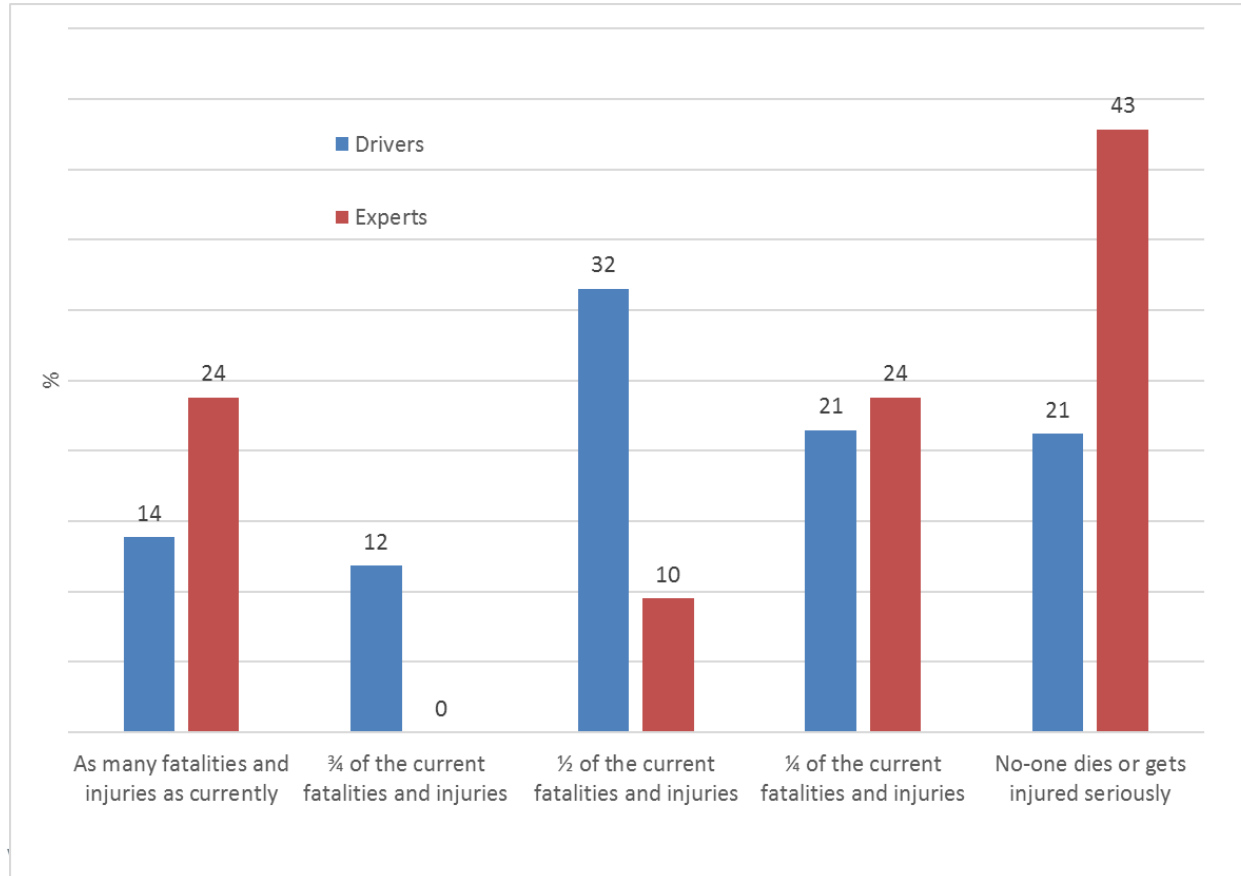
- The final sample included 1,154 drivers filling in the full questionnaire
 - Only active drivers were included into the sample (>1,500 km annually).
 - Driver sample represented Finnish drivers very well
- 12% of drivers indicated to be early technology adopters, 66% average and 22% as laggards
- Almost all (98%) drivers had some prior knowledge related to self-driving vehicles
 - Men were more familiar with the self-driving vehicles than women
 - The familiarity increased with the annual driving experience
 - The more of an early adopter the driver was, the more he/she knew about self-driving vehicles
 - When comparing to earlier studies, the Finnish drivers in the study had overall good prior knowledge of self-driving vehicles



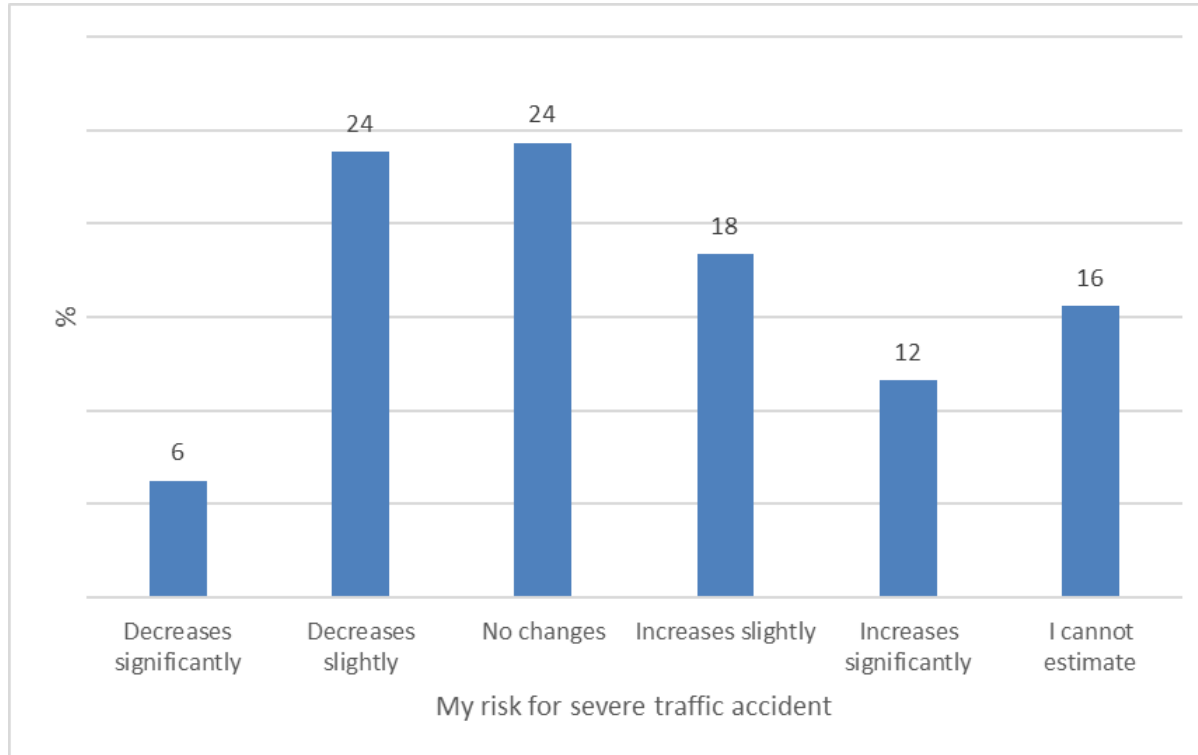
General opinion on self-driving vehicles



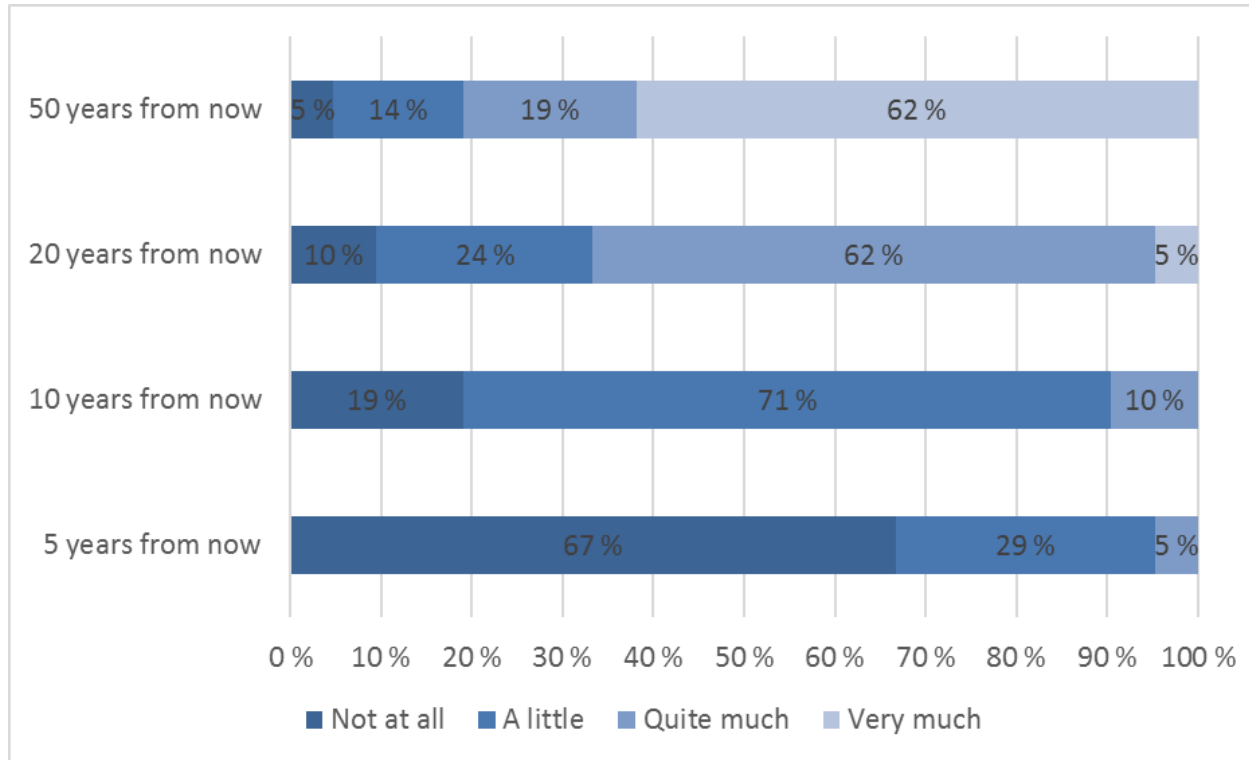
Acceptable safety level with self-driving vehicles



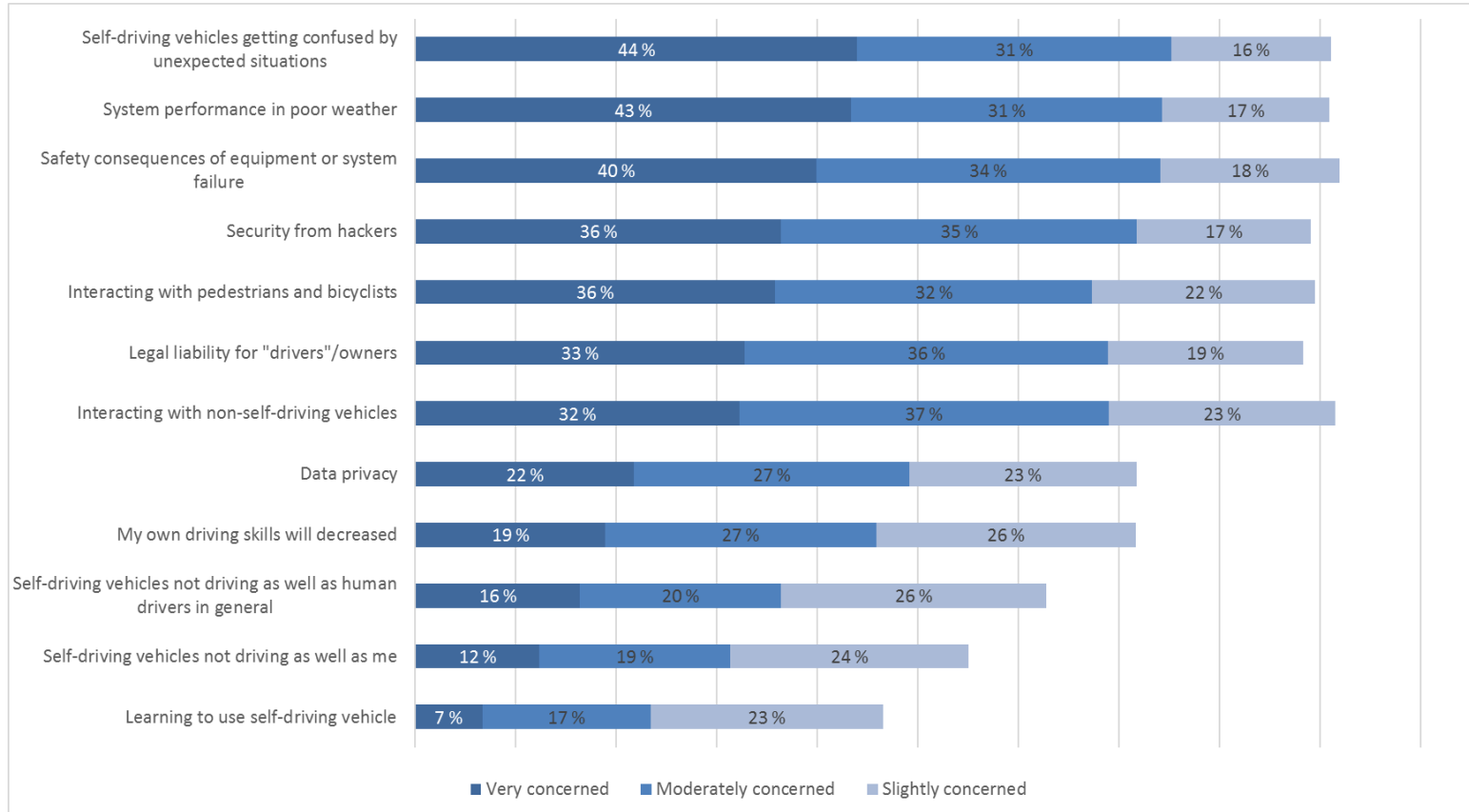
Drivers' expectation of their own risk in self-driving vehicles



Experts' expectation on the safety benefits from self-driving technology



Drivers' concerns



Discussion on methodology

- Surveys are not perfect methodology, when everyone has their own preconception of the future technologies they don't have any real experience yet...
- However, surveys are still among the only methods to gather expectations and opinions on those technologies drivers cannot try him/herself yet.
- The questions for this study were selected to be comparable to several international studies
- It is, however, important to repeat the study when more self-driving technologies are around, and the drivers have more experience they can base their opinions on



Discussion and conclusions

- It is also very important to keep the drivers (neutrally) updated on possibilities, limitations and potential impacts of the new technologies
- Own experience of the technologies forms the opinions, for sure.
 - On the other hand, even "after-experience" opinions depend very much on the knowledge and expectations drivers had before the hands-on experience
 - The more realistic view of the possibilities and limitations the drivers have, the better the use acceptance is (so far seen with L2 and L3 technologies)
- How to ensure the general public to get realistic information of the new automation levels and their limitations and possibilities?

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Thank you!

Additional information

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