

## FREEDOM ON FOUR WHEELS

### – Assessing the benefits of autonomous driving for the visually impaired

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#### **Introduction:**

The hype around future mobility in general and Autonomous Driving (AD) in particular, has rapidly changed the view of how people may travel in the future. Vehicle OEM:s such as Tesla, Google and Ford foresee full automation, where human senses are incorporated in the vehicle, relieving the human of the driving task. This development creates new possibilities for inclusive design, e.g. providing blind people the means for independent mobility. To motivate and guide future developments towards design for all, a research project was performed to answer the question - What are the benefits of self-driving vehicles for the visually impaired in their daily travel needs and how can these benefits be measured?

**Objective:** The purpose of the project was to identify measurable benefits of AD for the visually impaired. In general, the benefits of automation are often described as improved safety, comfort and reduced environmental impact. In this work we compare current and future transportation scenarios for blind people and examine the benefits they will experience by means of AD.

**Methods:** Based on a design thinking methodology, the benefits were elicited through a series of five workshops involving users, industrial and public stakeholders. Each workshop gathered around ten users and twenty persons from industry and society. The first two workshops identified current travel patterns and their corresponding aches and pains as well as establishing common understanding about the possibilities of automation among the participants. The following three workshops concerned elicitation of specific benefits of automation before, during and after the trip.

**Results:** The elicited benefits concerned many aspects of both physical travel and social life, e.g. time, comfort, safety and security, independence, equality, trust and predictability. From an industrial and societal perspective it is desirable to harmonize the development of the components within the transportation system to allow efficient development and accessibility. The benefits may be used in the development of (1) business models, (2) design, (3) prototyping and (4) evaluation of products or services.

**Conclusions:** The results implies that AD technology can radically improve independent mobility of visually impaired people. The workshops proved effective to extract a number of envisioned benefits that can be used as metrics to evaluate and guide future pathways towards a transport system for all.

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