Institute of Transport Economics
Norwegian Centre for Transport Research

ENGLISH

Summary

User Acceptance of Automated Vehicles

A Review of Research and Behavioural Models

TØI Report 2170/2026 • Authors: Ole Aasvik, Siri Hegna Berge • Oslo 2026 • 51 pages

- User acceptance is crucial for realizing potential benefits, such as improved road safety, more efficient land use, and lower emissions from shared automated vehicles.
- Established technology adoption models, such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), are often used to analyze attitudes toward automated transport, but they are applied inconsistently and are highly complex.
- Perceived usefulness, trust, and social comfort are key factors influencing willingness to use Shared Automated Vehicles (SAVs) and are introduced in the new Shared Automated Vehicle Acceptance model (SAVA-model).
- The SAVA-model offers a simplified yet reliable approach to understanding the factors that explain acceptance of shared automated vehicles.
- Acceptance is also shaped by contextual conditions, such as regulation, service availability, and universal design.

This report provides an overview of international research on user acceptance of automated vehicles, with particular emphasis on shared automated vehicles (SAVs). The aim is to compile and systematize knowledge about the factors that influence the willingness to adopt such mobility solutions. The report also presents a simplified framework for understanding acceptance of the technology, the SAVA-model. The report is based on a review of existing research on technology adoption and the application of such models in transport research.

The background for the report is the expectation that automated transport may help address several key transport and societal challenges. Automated vehicles have the potential to improve road safety by reducing human error, which is currently a major cause of traffic accidents. At the same time, automation may contribute to more efficient use of transport infrastructure and lower emissions if the technology is combined with shared mobility solutions. Shared automated vehicles are therefore often highlighted as a possible future mobility solution that could contribute to a more sustainable transport system. However, such benefits depend on the technology actually being used. User acceptance is therefore a crucial prerequisite for realizing the potential of automated transport.

The report reviews key models of technology adoption that have been used to analyze attitudes toward new technologies. In particular, the Technology Acceptance Model (TAM) and later developments such as the Unified Theory of Acceptance and Use of Technology (UTAUT) have played an important role in research literature. These models mainly explain technology use through factors such as perceived usefulness and perceived ease of use. In research on

automated vehicles, the models have often been extended with additional variables, including trust, risk perception, and attitudes toward safety. The literature also shows that the models are applied in different ways and that many studies include a large number of explanatory variables, making analyses complex and making studies difficult to compare.

To contribute to a simpler and more transparent framework, the report introduces the SAVA-model (Shared Automated Vehicle Acceptance). This model identifies three key dimensions that are particularly important for acceptance of shared automated vehicles: trust, usefulness, and social comfort. Trust refers to the extent to which users perceive the technology as safe, reliable, and predictable. Perceived usefulness refers to whether the service is considered practical, efficient, and relevant for everyday travel. Social comfort concerns how users experience sharing a vehicle with others, including issues related to safety, privacy, and interaction with other passengers. Together, these factors provide a simplified yet robust basis for analyzing user acceptance.

The report also discusses barriers and drivers of acceptance of shared automated vehicles. Trust in the technology emerges as a particularly important factor. Uncertainty related to safety, technological reliability, and liability in the event of accidents may contribute to skepticism among potential users. At the same time, experience with automated systems and clear regulations may help strengthen trust over time. Perceived usefulness is also crucial. If services are not perceived as time-saving, practical, or economically attractive compared with existing transport modes, demand will likely remain limited. Social comfort is especially relevant for shared mobility solutions, as sharing transport with strangers may represent a barrier for some users.

Finally, the report emphasizes that user acceptance is shaped not only by individual attitudes but also by broader societal and institutional conditions. Regulation, service availability, universal design, and the way services are integrated into the existing transport system may all influence whether the technology is adopted. Knowledge about user acceptance is therefore important for technology developers, transport authorities, and planners working on future mobility solutions.