Project

The impact of self-driving vehicles on city mobility

Self-driving vehicles have the potential to fundamentally alter our understanding of mobility. Working together with BaslerFonds and numerous other partners, EBP examined the general impact that self-driving vehicles could have on our mobility behavior, our transportation systems, our development initiatives and our infrastructure needs. In an in-depth study, we have now examined the impact self-driving vehicles can be expected to have on city mobility in particular.

It is only a matter of time until self-driving vehicles make their debut on our city roads. What impact will their appearance have on city transportation? What challenges will cities face as a result of self-driving vehicles and what opportunities will arise? And what can cities and municipalities do to steer developments in the interest of more favorable outcomes?

Impact on cities and municipalities

The purpose of our study was to examine the consequences of automated driving for urban spaces and various modes of transportation. The picture below shows the mobility spaces that are likely to be affected the most by changes in individual modes of transportation.

Client

BaslerFonds, Association of Swiss Cities and other partners

Facts

Period	2017 - 2018
Project Country	Switzerland

Contact persons

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	Fliessender Verkehr	Ruhender Verkehr	Kollektiver Verkehr	Fuss- und Veloverkehr	Güterverkehr
Hauptverkehrs-strasse	●	•	•	●	•
Zentrumsstrasse	●	●	●	●	●
Quartierstrasse	•	●	•	●	●
Gewerbegebiet	•	•	•	●	●
Multimodaler Verkehrshub	•	•	●	●	•

Our ability to bring about more sustainable forms of urban transportation in the long run will depend on our ability to fully exploit the advantages of automated driving to make forms of public transportation more appealing. That being said, automated driving can also be expected to lead to a relative increase in the appeal of private motor vehicles. Our study was therefore designed to account for possible negative consequences of automated driving. Of particular concern is an anticipated increase in traffic volume as people opt against riding bicycles and walking. Moreover, an increase in the number of private motor vehicles would have an impact on the development of public spaces. However, increases in occupancy rates for private motor vehicles could free up space, for instance, space otherwise allocated to parking lots. This space could be used by cities in the future to increase the appeal of bicycling and walking.

Impact on settlement preferences

Rural areas stand to profit most from improved access via private motor vehicles. This shift in appeal could reinforce trends towards urban sprawl and rural settlements. On the other hand, efficiency gains in the area of public transportation and new individualized forms of public transportation could increase the appeal of urban areas and reinforce existing trends toward urbanization. The interaction or competition between private motor vehicles and public transportation can be expected to play a significant role in space and infrastructure development. The extent to which our approach to developing large spaces will change will depend significantly on the ways in which automated driving is regulated and the success of efforts to harmonize transportation planning and spatial planning.

Mobility management options

The challenge for cities is to arrive at environmentally sustainable forms of transportation that are also compatible with the city in question. The introduction and development of automated driving is therefore to be embedded in holistic concepts that account for transportation, city-planning and spatial development objectives. It is important to consider how automated driving can be introduced and maintained so as to promote forms of equitable and environmentally sustainable mobility. In this regard, we use our study results to derive ten strategies for city planners.

Follow-up studies as a part of a total package

The project was a part of a comprehensive study on the large-scale introduction of automated vehicles. The study gave rise to a preliminary analysis and revealed a need to conduct follow-up studies relating to the following subjects:

— Traffic engineering
— Effects on road safety
— Data and IT infrastructures
— New offerings for shared transportation
— Freight transportation and city logistics by road
— Impact on resources, environment and climate

Study results

We compiled our findings in a synthesis: Large-Scale Introduction of Automated Vehicles – Applications and Effects in Switzerland, Report of September 5, 2018