

The Impact of Autonomous Driving on Cities of the Future: A Literature Review

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Abstract : The public authority needs to understand the role and impacts of autonomous vehicle (AV) on the mobility system. At present, however, research shows that the impact of AV on cities varies. As a consequence, it is difficult to make recommendations to policymakers on how they should prepare for the future when so much remains unknown about this technology. The study aims to provide an overview of the literature on how autonomous vehicles will affect the cities and traffic of the future. To this purpose, the most important studies are first selected, and their results summarized. Further on, it will be clarified which advantages AV have for cities and how it can lead to an improvement in the current problems/challenges of cities. To achieve the research aim and objectives, this paper approaches a literature review. For this purpose, in a first step, the most important studies are extracted. This is limited to studies that are peer-reviewed and have been published in high-ranked journals such as the Journal of Transportation: Part A. In step 2, the most important key performance indicator (KPIs) (such as traffic volume or energy consumption) are selected from the literature research. Due to the fact that different terms are used in the literature for similar statements/KPIs, these must first be clustered. Furthermore, for each cluster, the changes from the respective studies are compiled, as well as their survey methodology. In step 3, a sensitivity analysis per cluster is made. Here, it will be analyzed how the different studies come to their findings and on which assumptions, scenarios, and methods these calculations are based. From the results of the sensitivity analysis, the success factors for the implementation of autonomous vehicles are drawn, and statements are made under which conditions AVs can be successful.

Keywords : autonomous vehicles, city of the future, literature review, traffic simulations

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