

Autonomous Vehicles and the Future of Private Vehicle Ownership

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The world is changing very rapidly. All advanced economies, as well as some emerging ones are facing big demographic changes, with ever-increasing levels of automation and interconnectedness. One of the processes that are poised to have an enormous effect on transportation and labour markets is the availability of mobility on demand.

This article examines the attitudes of people towards mobility on demand provided by fully autonomous vehicles, corresponding to a level 5 automation according to the current SAE classification. The aim of the paper is to discover if there is a market for mobility on demand as well as its size. While the study was made in Slovenia, the results can be indicative for all similar OECD countries. In this paper, we will focus solely of personal transportation, ignoring commercial transportation.

Recent studies suggest that fully autonomous vehicles have an outstanding potential in reducing pollution, lowering congestion rates, increasing the frequency of transport, while at the same time making it cheaper and faster than ever before. While these dramatic improvements are possible with current internal combustion engine vehicles, only with a transition to fully electric automatic vehicles and the use of vehicles of different sizes according to the type of trip the full potential of these improvements can be achieved. For example, small one-person vehicles might be used for work commutes, hatchbacks for groceries, minivans for family trips, and so forth.

While for the foreseeable future personal vehicle ownership rates are likely to stay the same (or are actually set to rise in emerging economies), when fully autonomous vehicles become available starting in the 2030's, it is possible that private ownership rates will drop in favour of on-demand automated cab-like transportation or mobility on demand. Private or public enterprises might operate fleets of vehicles, which will use techniques such as cameras, radars, GPS, internet and other advanced control systems to operate safely on the road, as demonstrated recently by pioneers such as Tesla Motors. These smart, efficient and interconnected vehicles will offer the possibility of pick-up on demand and drop-off at any desired location with a vehicle specifically chosen for that trip.

Since the subject is very new, few studies have been made so far. Our study is based on an in-depth poll conducted in 2017 on over 100 individuals from Slovenia. The respondents were informed about autonomous vehicles (as the subject is still unknown to many) and asked whether they would use autonomous vehicles at all, and if so, would they use them exclusively or occasionally while retaining their own vehicles. The results suggest that while most car owners would choose to retain their own vehicles, a significant minority would choose to abandon them in exchange for mobility on demand.

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