

## **Autonomous Vehicles: What Will the Future Look Like?**

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The world is changing very rapidly. All economies, both advanced and emerging, 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 society in general is the availability of mobility on demand.

This article examines the effects of mobility on demand provided by fully autonomous vehicles, corresponding to a level 5 automation according to the current SAE classification. 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. This paper will focus both on personal and commercial transportation, with emphasis on personal transportation.

Recent studies suggest that fully autonomous vehicles have an outstanding potential in reducing pollution, lowering congestion rates, increasing the frequency of transport, making transportation cheaper and faster, and allowing for a complete redesign of the cities of today.

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 the future is still uncertain, it is likely that private ownership rates might 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, and now expanded by many other manufactures, including leaders such as BMW, Ford and Volvo among others.

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