Autonomous vehicles: what role do they have in the mobility transition?

Ongoing research

At a time when companies and governments are pouring their energy into the search for innovation, autonomous vehicles seem to embody the epitome of an innovation that promises to revolutionize the future of the automobile. Around the world, the progress made by Google and Uber as well as the announcements of American, European and Asian manufacturers are being closely monitored and covered by the media. In this context, the Mobile Lives Forum commissioned La Fabrique Ecologique, a French environmental think tank, to study whether autonomous vehicles can be part of the transition to a more sustainable world.

Research participants

LA FABRIQUE ÉCOLOGIQUE

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Research

The research questions the sustainability and desirability of autonomous vehicles given current environmental and social issues. Sustainability is considered in light of the three traditional pillars of sustainable development: environmental, social and economic.
From an environmental standpoint, can autonomous vehicles help reduce the CO2 impact of the current privately-owned, individual car system? Can they do so in the required timeframe to fight climate change?

From a social standpoint, could autonomous vehicles be used in desired lifestyles? Can they benefit everyone, not only the most well-off but also those with modest incomes and more dependent (disabled, elderly, adolescents), etc.?

Finally, from an economic standpoint, how would the required infrastructure for the development and use of autonomous vehicles be financed, in a context of privatization of transport infrastructure?

To answer these different questions, the research aims to analyze and quantify the environmental impacts of autonomous vehicles, integrating all direct and indirect impacts. This will mean taking into account the consumption of resource and energy for the manufacture and use of the vehicles, but also of the infrastructure as well as the data production and processing. The potential direct, indirect or macroeconomic rebound effects generated by the use of autonomous vehicles will also be analyzed.

In a second phase, various scenarios for the development of autonomous vehicles will be established, integrating different parameters. Two avenues for growth can be considered: the first consists of an incremental development of autonomous vehicles as substitutes for traditional vehicles, mainly for individual use. The second hypothesis is the development of a collective use of autonomous vehicles. In addition, the type of territory covered by autonomous vehicles will also be taken into account in the scripting of these hypotheses, as the possible uses of autonomous vehicles will be different depending on the type of area (urban, suburban or rural).

Finally, we will examine how the required infrastructure to develop and use autonomous vehicles would be funded.

The working group

Following the study, a working group will be set up and led by La Fabrique Ecologique and the Mobile Lives Forum. A list of questions generated by the study will be submitted to a group of participants from different professional backgrounds: scientists, representatives of civil society, environmental or sustainable development professionals, etc. Following the group’s meetings, a note will be drafted to propose pragmatic and concrete recommendations.

The results of the study are expected in the summer of 2020; the working group will be set
up in the fall of 2020.

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Transport mode(s): Automobile

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