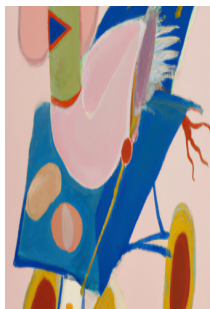


1. Projects



Greener mobilities: The light vehicle revolution

Finished research

Begin: September 2021

End: February 2023

The current automobile system, based on speed, is the cause of many problems (environmental, social, etc.) that public authorities seek to address mainly by way of technological improvements – in particular the transition to electric vehicles – but without trying to halt the growing sales of SUVs. Opposing these current dynamics, the Mobile Lives Forum, in partnership with La Fabrique Écologique, wanted to explore an alternative: light vehicles, based on more sober technologies. Together, the institutes directed a working group tasked with identifying the benefits and understanding the means for promoting the development and distribution of these vehicles which respond to numerous needs.

Research participants

- Mobile Lives Forum
- La Fabrique Écologique

A dozen experts and professionals from the mobility, energy transition and car sectors formed the working group. It met about ten times between September 2021 and November 2022 to reflect on the benefits and means of promoting a light vehicle sector and on making these vehicles available to all.

• Confronted by an unsustainable automotive system: lending weight to lightness

Today's automobile system which is based on speed has become unsustainable: trips are becoming longer in terms of both time and distance, households are increasingly motorised, vehicles are getting heavier, there are considerable ecological impacts (CO₂, spatial impact, pollution, etc.), people feel their lifestyles have become too hectic, and there are social inequalities and costs both for individuals and the community that can no longer be ignored, especially after the energy crisis of 2022. Faced with these challenges, public policies focus primarily on the transition to electric vehicles and the quest for technological innovations (such as autonomous cars) to reduce greenhouse gas emissions in the transport sector, which is the main source of emissions in France.

However, a technological approach is insufficient to tackle these issues, because on the one hand it does not address the other ecological and social impacts of road passenger transport (urban sprawl, sedentary lifestyles, high economic costs, etc.) and on the other, transitioning to electric vehicles increases other environmental pressures. The reference scenario presented by RTE (Réseau Transport Électrique) in 2021 forecasts that the electric transition of the transport sector will be the main factor in increased electricity consumption by 2050, requiring a mass and rapid development of renewable energies and/or nuclear. Despite the current trend of selling ever more heavy SUVs, including electric ones, another way is possible: to focus innovation on reducing vehicle weight and improving vehicle sobriety, all while still meeting people's travel needs.

In addition to public transport, walking and cycling, a new alternative to cars must be developed: light vehicles, that are less expensive, have lower energy needs (electric or human), and that enable frequent trips for different purposes.

• They already exist and they can meet a variety of needs

There already exists a range of light vehicles that fall somewhere between bicycles and cars and that could meet a variety of needs, for everyone and in all types of territories. These are vehicles weighing less than 500 kilograms, some still prototypes, which generally travel at a maximum speed of 50 km/h and emit little CO₂, both during their use (because they are mechanical or

electric) and over their entire lifespan thanks to local production and greater reparability. These vehicles provide greater flexibility than bicycles (balance, speed, effort, transport of goods and people, etc.) and are more adapted to local trips than cars as we know them today. They are particularly suitable for local daily trips: going to work, shopping, transporting equipment, accompanying children and the elderly, etc. As of today, they could meet the needs of 30% of the population whose daily activities fall within a 9 km radius of their homes, of 60% of the working population with a commute under 9 km, of 23% of workers making daily or occasional business trips, or even of families with 2 or 3 children. There are also vehicles adapted for people with reduced mobility, for example low step through bicycles, vehicles with hand pedals or even those with a platform to accommodate a wheelchair.



Velomobile type H © Darin Schnabel / RM Auctions



Bike-car commercialisé par Midipile © Midipile



Three-wheeled cargo bike by Kiffy, which has a trailer hitch ©Kiffy



Gocab – bicycle taxi for 8 children

These vehicles could be easily produced and repaired thanks to a decentralised system that would combine both industrial manufacturing (for components) and craftsmanship (for assembly and repair). These vehicles could thereby be produced locally, in small factories throughout the territory, which would create jobs and improve the working conditions of manual workers.

Light vehicles could then be made available to the population in each municipality or inter-municipality (depending on their size) through a system of vehicle sharing and short or long-term rentals. Such a system would allow a variety of vehicles adapted to a variety of needs to be offered: cargo bikes to transport goods, bicycle taxis to transport several people, microcars for longer journeys, etc. This would not preclude the possibility of personal vehicle ownership, especially when specific adjustments are required (for people with reduced mobility, for instance), and subsidies (aid from local authorities, from public or private health insurance, etc.) could be made available to help with these purchases.

• They can fit into an alternative system to the car

Moving beyond their design, in order to promote the development of sober mobility, the group recommends that these light vehicles form part of the reorganisation of the territory to limit the number and scope of trips, thus responding to people's aspirations. This would mean reducing travel speeds, adapting infrastructures - in particular lane widths to allow different traffic speeds to coexist alongside each other - but also rethinking land use planning to promote more localised lifestyles. In addition to walking and cycling, these light vehicles could thus be part of a modal system that forms a real alternative to cars. Their rollout would also go hand in hand with a new representation of mobility that abandons speed and performance.

How can this be done?

Pour impulser le développement et la diffusion de véhicules légers, le groupe de travail propose :

- establishing a system of financial bonuses and penalties based on vehicle weights, which is a necessary condition for the development of intermediate vehicles.
- organising "national and translocal meetings of light vehicles," in order to make journalists and public authorities aware of the potential of these vehicles and to unite stakeholders in order to foster the emergence of a new sector.
- setting up a "mobility centre" in each municipality or inter-municipality, adapted to their respective size, to provide light vehicles for short or long-term rental and to offer tailored mobility support to individuals.

A light vehicle...

What is it?

More versatile than a bicycle, yet simpler and more sober than a car

Who can use it?

The 30% of the population who already conduct their daily activities within a 9km radius of their home; the 60% of the working population with a commute under 9 km; the 23% of workers making daily or occasional business trips; families with 2 or 3 children; people with reduced mobility requiring a more suitable vehicle than a bicycle to get around; ...

How much does it weigh?

Under 500 kilos

How fast can it go?

Up to 50km/h

What kind of engine?

Mechanical or electric

How much does it cost?

From 1,500 to over 10,000 euros depending on the type of vehicle (around 1,500 euros for an electric bike, 3,500 euros for a cargo bike, 4,000 for a three-wheeled cargo bike and 10,000 for a microcar).

What can it be used for?

Local daily trips: going to work, shopping, transporting equipment, escorting children and the elderly, etc.

How should their use be encouraged?

Set up a bonus and penalty system based on vehicle weights, organise the production and repair sector, make light vehicles available to communities and support individuals in changing their habits and practices.

The working group's note was presented at a conference co-organised by the Mobile Lives Forum and La Fabrique Écologique, on 8 February 2023.

Download the full report (in French only)

Note ouverte à la co-construction citoyenne

Pour une mobilité sobre: la révolution des véhicules légers

Février 2023

Mobility

For the Mobile Lives Forum, mobility is understood as the process of how individuals travel across distances in order to deploy through time and space the activities that make up their lifestyles. These travel practices are embedded in socio-technical systems, produced by transport and communication industries and techniques, and by normative discourses on these practices, with considerable social, environmental and spatial impacts.

En savoir plus x

Associated Thematics :

Lifestyles

- Alternative mobilities
- Cars / motorcycles

- Change in practices
- Futures
- Proximity

Policies

- Cars
- Ecological transition
- Cities & Territories

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