



**HAL**  
open science

# The place of the bicycle in micromobility: a mobility challenge

Mathieu Rabaud, Cyprien Richer

► **To cite this version:**

Mathieu Rabaud, Cyprien Richer. The place of the bicycle in micromobility: a mobility challenge. Velo-city 2024, Jun 2024, Ghent, Belgium. halshs-04645165

**HAL Id: halshs-04645165**

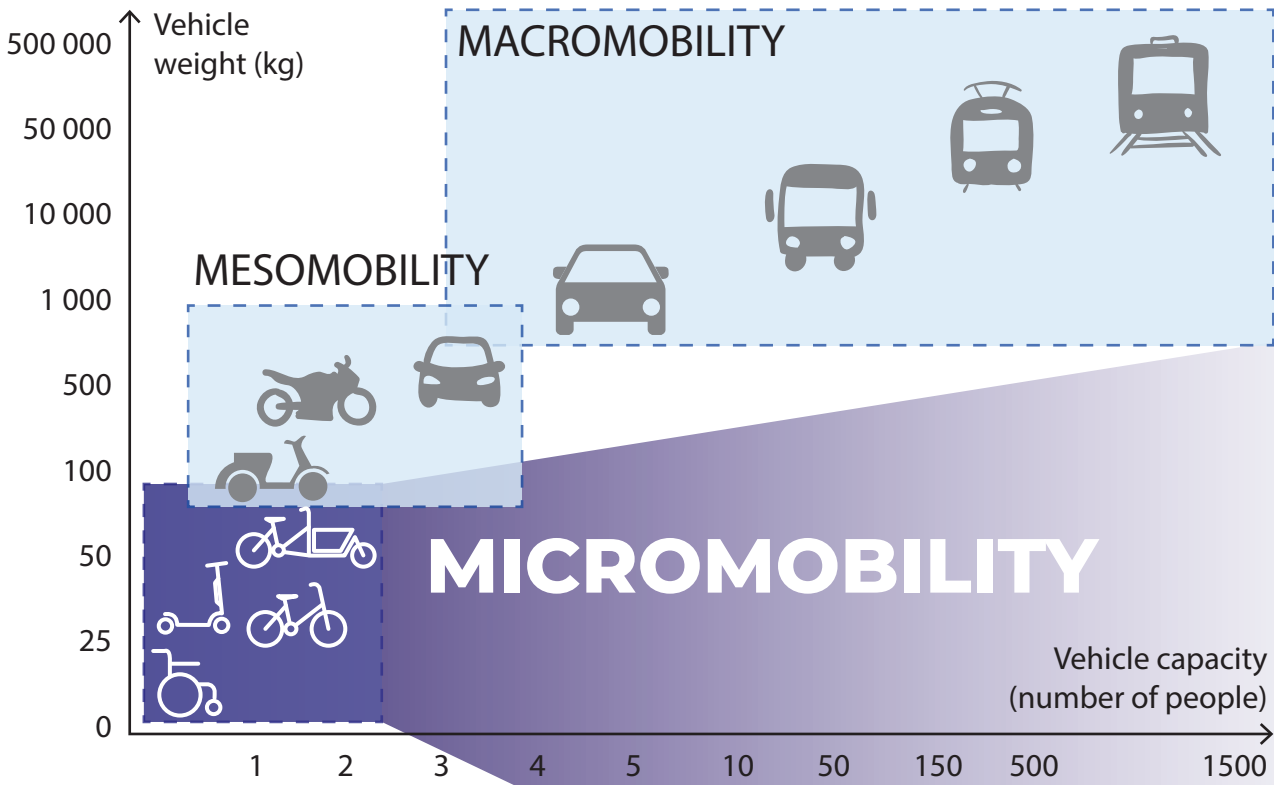
**<https://shs.hal.science/halshs-04645165v1>**

Submitted on 11 Jul 2024

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

## Question



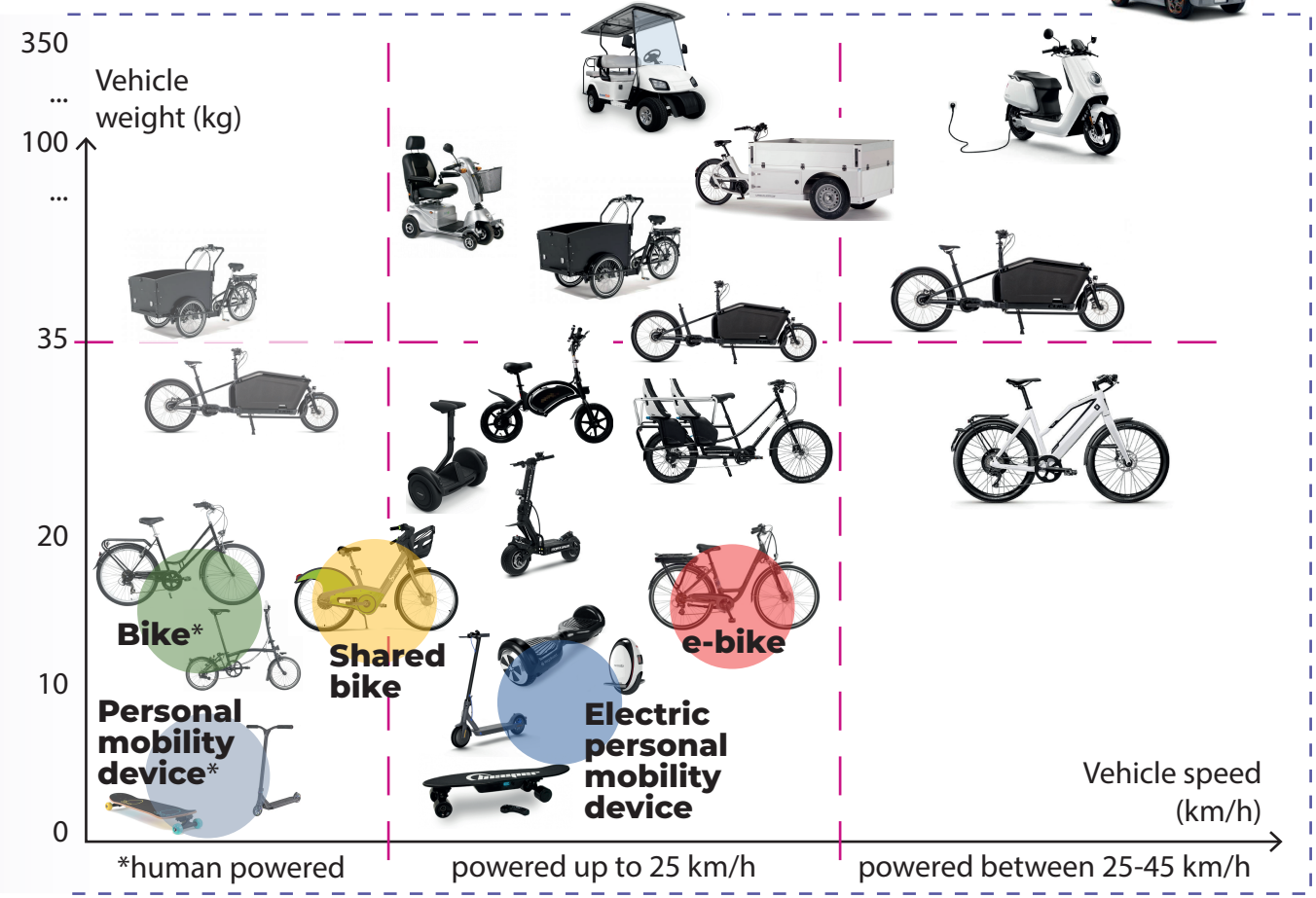
The three scales of mobility as a function of vehicle weight and capacity (Cristoforou et al, 2021)

Cities are becoming more and more multimodal as the diversity of transport modes increases (Amar, 2010). In particular, the field of **micromobility** has been disrupting urban travel. Micromobility involves the ability to move using minimalist means, typically referring to small, lightweight vehicles (Ki Eom et al. 2023), such as bicycles, e-bikes, and e-scooters (Boglietti et al., 2021), possibly shared. This diversity of efficient modes for short-distance mobility or first-to-last-mile service has the potential to overcome the shortcomings of the existing automobile-dependent transportation system.

Are these micro-vehicles modes **competing** against each other or are they **complementary** ?

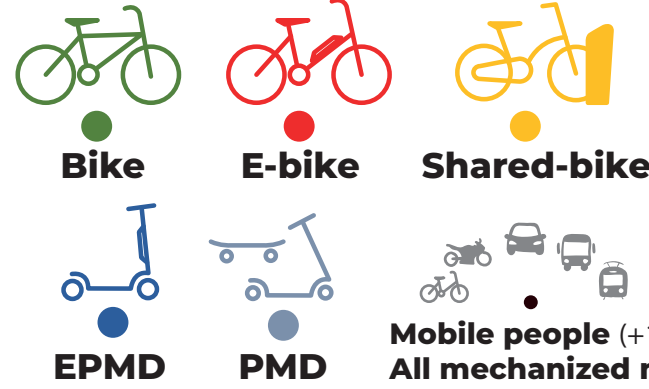
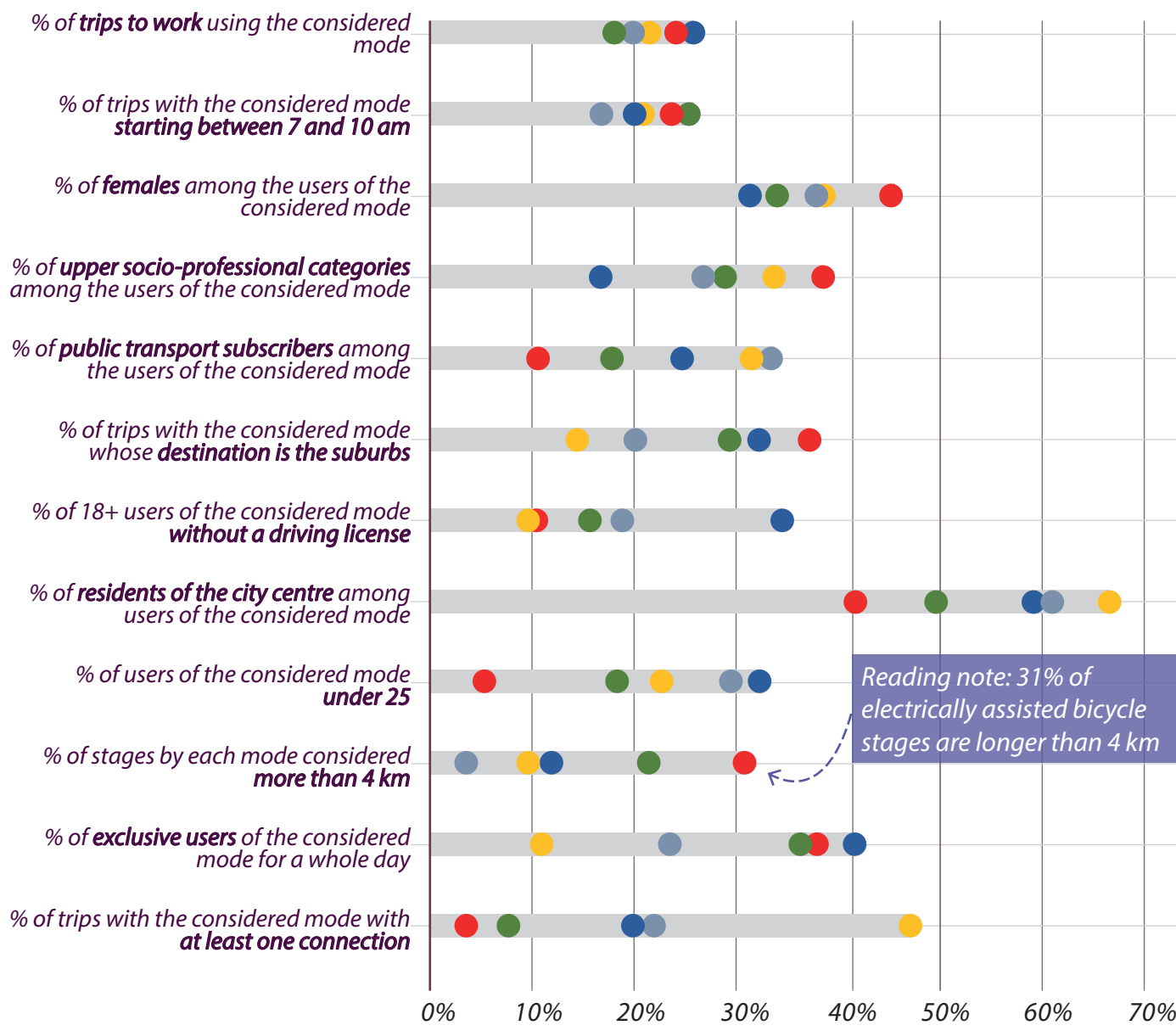
What can we say about the issues of intermodality? In particular, it is a question of understanding whether the development of cycling is impacted by the growth of e-scooters and other light transport vehicles.

Micromobility as the use of micro-vehicles: vehicles with a mass of no more than 350 kilograms and a design speed no higher than 45 km/h (Safe Micromobility, OCDE/ITF, 2020).

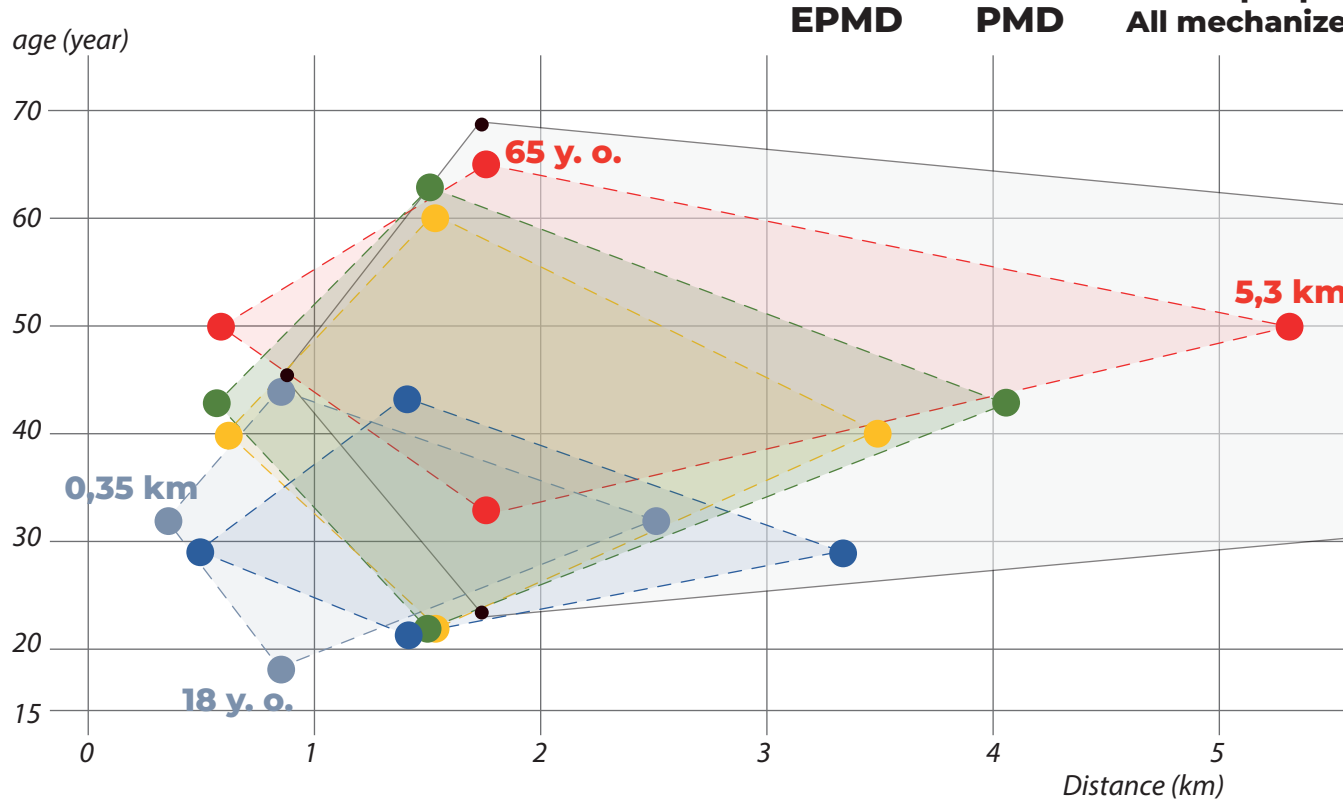


## Results

### Characteristics of trips and users of five types of micromobility

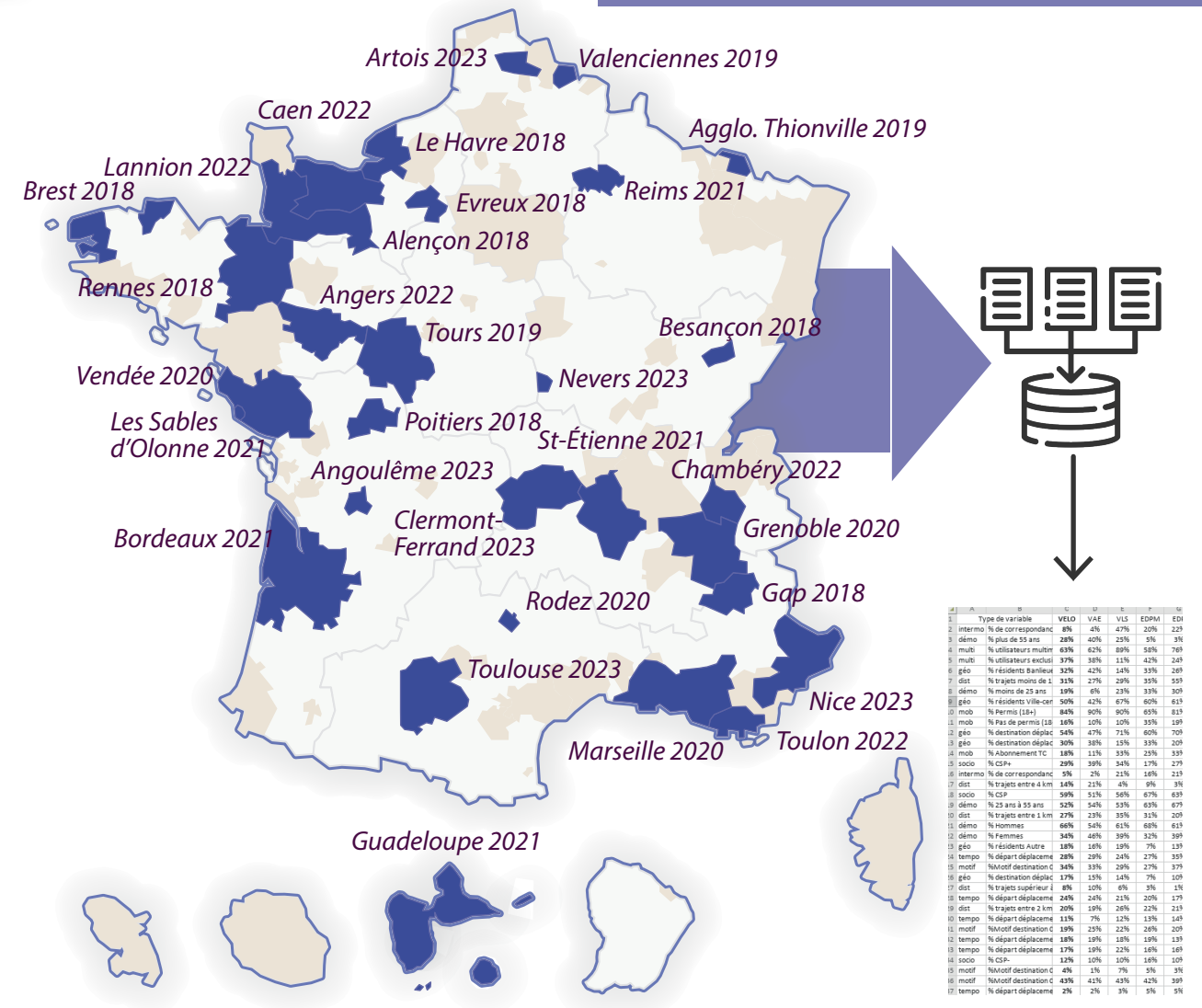


### A socio-spatial representation of micromobility



## Data

### Household Travel Surveys map included in the unified database



The data used is from the **Unified Household Travel Survey Database**, which is a combination of different household travel surveys from cities in France. By using 25 surveys carried out since 2018 all over France, and focusing on people who are more than 14 years old to avoid toys, we identified more than 12 000 trips by bike, 1 300 by e-bikes; 600 trips by e-scooters and 200 by human powered micromobility devices (except bike).

## Conclusion

The human-powered **bicycle occupies a central place in micromobility**, with generally an average position in relation to the different characteristics we analyzed. EPMDs and PMDs cover mobility different from bikes: users are younger and from lower social classes, distances are shorter. Shared bicycles have a profile closer to human-powered bicycles in terms of age criteria but they are used over shorter distances. Competition with personal bicycles is very relative because shared bicycles are often used in an intermodal combination and essentially in an urban context. Electric bikes concern older people and those from higher social categories. They allow longer trips outside the city center. Micromobility is thus distinguished from other mobilities by a younger audience and shorter distances. The challenge is to increase the possibilities of **intermodality** for EPMD in particular and to increase distances through adapted infrastructure. Finally, the performance of micromobility requires more **inclusive practices**, particularly towards older people who are still poorly represented among current users.

15th and 85th percentile by mode on the criteria of **user age** and **distance traveled** per stage

