# newTRENDs

## Breakout Session: Sharing economy in transport

### Stakeholder Event 22/10/2021

Hosts:
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This project has received funding from the European Union´s Horizon 2020 research and innovation programme under grant agreement no. 893311.

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# AGENDA

- Tour de table- Introduction
- Policy dimension of sharing economy in transport
- Improvements in modelling of the sharing economy in transport
- Questions for discussion
- Use of MIRO infrastructure and Open discussion

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# INTRODUCTION RESEARCH QUESTIONS

WP7 is the third of three focus studies related to New Societal Trends and analyses the impact of the shared economy in transport and the tertiary sector on energy demand.

- How can we capture the New Societal Trends in transport via mathematical models? What is the current state of modelling and how can we improve existing modelling approaches?
- How to simulate the sharing economy causality effects in the transport models? How can sharing economy act as enabler of transport decarbonisation and energy efficiency improvements?
- Which policy measures support the uptake of sharing economy in transport? Which are the barriers and how can we overcome them? How to model those?

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# Sharing Economy in transport: The policy dimension

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# SHARING ECONOMY Regulations

**CODES/STANDARDS/ MANDATES**

**Measures:**

- Directive on the deployment of **alternative fuels infrastructure** (2014/94/EC)
- **Eco-design** requirements for electric motors and variable speed drives regulation (2019/1781)
- **$CO_2$ emission performance standards for new passenger cars** and for new light commercial vehicles regulation (2019/631)
- Directive on **fuel economy and $CO_2$ emissions** in respect of the marketing **of new passenger cars** (1999/94/EC)

OBLIGATION SCHEMES

- Directive on **services in the internal market** (2006/123/EC)
- Directive on certain legal aspects of information society services, in particular **electronic commerce** (2000/31/EC)

OTHER REGULATIONS

- The car sharing services require efficient digital supporting platforms. The law also regulates $CO_2$ emission intensity and the increasing use of the alternative fuel vehicles, together with supporting investments in the infrastructure for charging and refuelling these vehicles.

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# SHARING ECONOMY
# Regulations

CODES/STANDARDS/ MANDATES

**OBLIGATION SCHEMES**

OTHER REGULATIONS

**Measures:**

- Directive on the **promotion of clean and energy-efficient road transport vehicles** (2019/1161)
- Regulation on **binding annual greenhouse gas emission reductions** by Member States from 2021 to 2030 (2018/842)
- Directive on the **reduction of national emissions** of certain atmospheric pollutants (2016/2284)

- Regulations provide a definition of clean vehicle for all purposes, including public vehicle-sharing schemes. Furthermore, the Member States need to meet overall emissions reduction targets for GHGs and other pollutants, which leads to increased ambition of the national-level schemes for transport.

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# SHARING ECONOMY
## Regulations

CODES/STANDARDS/ MANDATES

OBLIGATION SCHEMES

**OTHER REGULATIONS**

**Measures:**

- Directive on common rules for the **internal market for electricity** (2019/944)
- Directive on the organisation of the **working time of persons performing mobile road transport activities** (2002/15/EC)
- Regulation on the **harmonisation** of certain **social legislation relating to road transport** (561/2006)

- Other policies which create framework conditions for the use of relevant inputs (energy, labour) will affect the development of sharing economy in transport sector

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# SHARING ECONOMY
## Economic and financial instruments

**DIRECT INVESTMENT**

**Measures:**

- Structural and regional funds
- EIB funding
- Horizon Europe / Digital Europe
- Directive on the establishment of a framework to facilitate sustainable investment (2020/852)

FISCAL/FINANCIAL INCENTIVES

- Besides direct funding, policies may influence access to finance by highlighting sustainability (e.g. recyclability, emissions performance) of shared vehicles.

MARKET-BASED INSTRUMENTS

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# SHARING ECONOMY
## Economic and financial instruments

DIRECT INVESTMENT

**Measures:**

**FISCAL/FINANCIAL INCENTIVES**

- Directive restructuring the framework for the **taxation of energy products and electricity**

**MARKET-BASED INSTRUMENTS**

- Review of the EU Emissions Trading Scheme – **ETS Directive**

- Carbon pricing covering motor fuels may lead to faster phase-in of electric vehicles but also increase the demand for mobility options that are more cost-efficient than owning a car, including sharing economy services.

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# SHARING ECONOMY
# Soft instruments

**VOLUNTARY APPROACHES**

**Measures:**

- Green Public Procurement
- Guidance on the development of cycling infrastructure
- EU platforms for the co-operation and information exchange among municipal authorities

- Guidance on the public procurement of vehicle fleets, fleet services and public transport services can be relevant for municipal car-sharing or bike-sharing schemes. Also the cooperation and information exchange among municipal authorities can influence local urban mobility policies and mobility infrastructure spending in ways that are relevant for the development of sharing economy models

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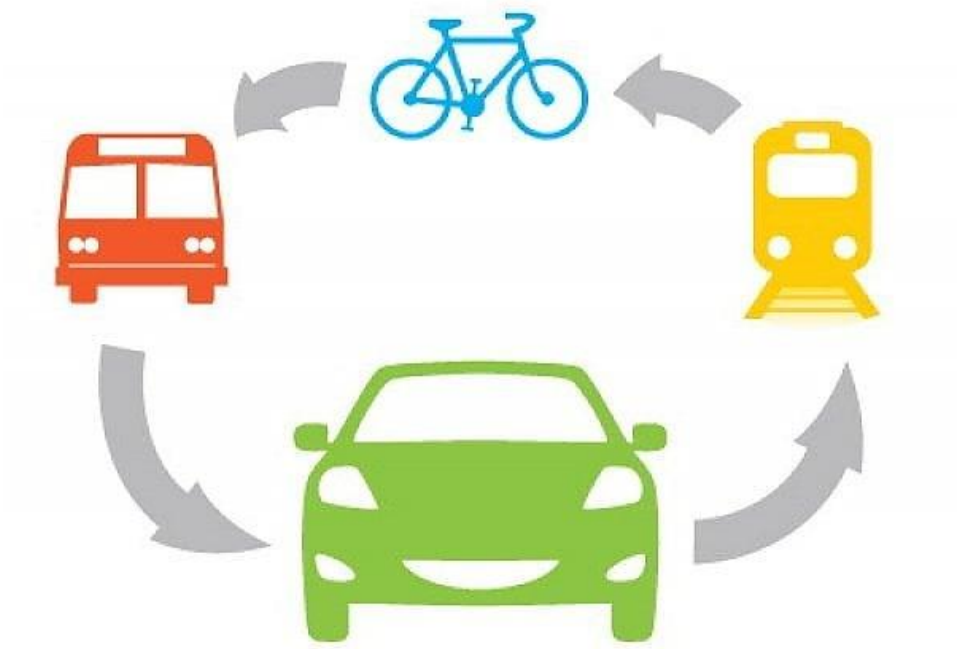
# Sharing Economy in transport: Enhancements of the PRIMES-TREMOVE transport model



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# BRIEF OVERVIEW OF PRIMES-TREMOVE TRANSPORT MODEL

- Economic-engineering model for projecting the transport sector into the future and assessing policies
- Projections by 5-years steps until 2070 for all countries in the EU27 and UK
- The model includes:
  - Passenger and freight activity by transport mode
  - Fleet development in all transport modes
  - Energy consumption, $CO_2$ and air pollution emissions
  - Costs, investment and externalities
- Representation of various policy measures:
  - Standards on vehicle types, sectoral fuel mandates and/or GHG intensity reduction targets, pricing (ETD, ETS, other), infrastructure (transport and alternative fuel) measures, other
- PRIMES-TREMOVE is linked with the
  - PRIMES energy systems model to receive electricity, hydrogen, syn. fuel and ETS prices
  - PRIMES-Biomass model to assess impacts on the biofuel production chains and receive biofuel prices

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# IDENTIFICATION OF BARRIERS FOR UPTAKE OF SHARING ECONOMY IN TRANSPORT - I

- How to enable uptake of sharing economy in transport? Which policies can remove potential barriers?
  - Comfort of car and easily accessible (e.g. from the parking lot)
    - vs walking to get to the shared car
  - Pride of car ownership (region specific, e.g. Balkans)
    - Cultural aspect
  - Purchasing of cheap imported second hand cars (region specific)
    - Cars can still be affordable for the available household budget

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# IDENTIFICATION OF BARRIERS FOR UPTAKE OF SHARING ECONOMY IN TRANSPORT - II

- Technology/apps supporting car sharing still advancing (demand and supply matching problem, asymmetry of information, payment systems)
- Limited supply of sharing service (limitations from the perspective of the supplier)
- Low market acceptance from the consumer perspective (behavioral change?)
- Covid-19 increased use of private vehicles due to health considerations (unclear whether long-lasting or not)

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# SHARING ECONOMY IN TRANSPORT- NEW MODEL DESIGN CONCEPTS: TRAVEL DEMAND SIDE - II

- Who decides?
  - Attributes of decision makers (income, travel pattern/purpose, residence, other)
- What type of decisions need to be modelled?
  - Hierarchical structure of decisions
- Should I buy a car or not?
  - Decision criteria (not exhaustive): Fixed and variable costs; utility deriving from owning a car; availability of alternative mobility options

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# SHARING ECONOMY IN TRANSPORT- NEW MODEL DESIGN CONCEPTS: TRAVEL DEMAND SIDE - II

- If I own a car, should I drive it or find alternative mobility options for a given trip?
  - Alternative mobility options:
    - Public transport
    - "Sharing economy" options: car sharing (rental of car), ridesharing/carpooling, bike and e-scooter sharing, ride-sourcing (e.g. Uber)
  - Factors influencing decision making among options?
    - Cost of the vehicle, price of the shared transport option, cost of time, intangible costs (e.g. lack of comfort)
    - Form a generalized cost (applying weights depending on actor attributes)
    - Policies (pricing, incentives, etc)

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# SHARING ECONOMY IN TRANSPORT- NEW MODEL DESIGN CONCEPTS: VEHICLE SUPPLY SIDE

- Who provides the mobility service?
  - Self supply, car sharing companies (employing a driver or not), public transport operators
- What type of vehicles are purchased?
  - Conventional diesel/petrol, hybrid, plug-in hybrid, battery electric, hydrogen fuel cell
  - Bound to EU climate neutrality concept
- New vehicle selection criteria
  - Fixed and variable costs, financing condition (discount rates), availability of recharging, hydrogen refueling infrastructure, utilization of the vehicle
- Pricing of the service (Equilibrium between demand and supply)

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# OPEN QUESTIONS: POLICY FOCUS

- In which cases do you think the shared mobility will lead to reduced energy demand (e.g. less activity in vehicle manufacturing), and where will it lead to higher demand (e.g. more trips overall)?
- How the EU policy framework on sharing economy transport support can be further enhanced?
- How can policy ensure that shared mobility complements rather than substitutes public transport?

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# OPEN QUESTIONS: MODELLING FOCUS

- Which are the most important barriers for uptake of sharing economy in transport (3 most important)?
- What type of scenarios (e.g. high uptake of electrified shared cars) are interesting from a policy making point of view?
- How sharing economy may evolve under different societal trends (e.g. urbanization vs decentralized work, digitalization and vehicle automation)?
- What type of linkages with other sectors of the economy may arise (e.g. residential)?

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