



National Technical University of Athens  
Road Safety Observatory

Online  
workshop  
in the framework of

6TH UN GLOBAL ROAD SAFETY WEEK

17 - 23 May 2021



Streets for Life

# Love30



Thursday  
20 May  
2021

Innovation in Road Safety Research

# SHared automation Operating models for Worldwide adoption

**Maria Oikonomou**

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Together with:

Christos Katrakazas, Marios Sekadakis and George Yannidis



# The SHOW project

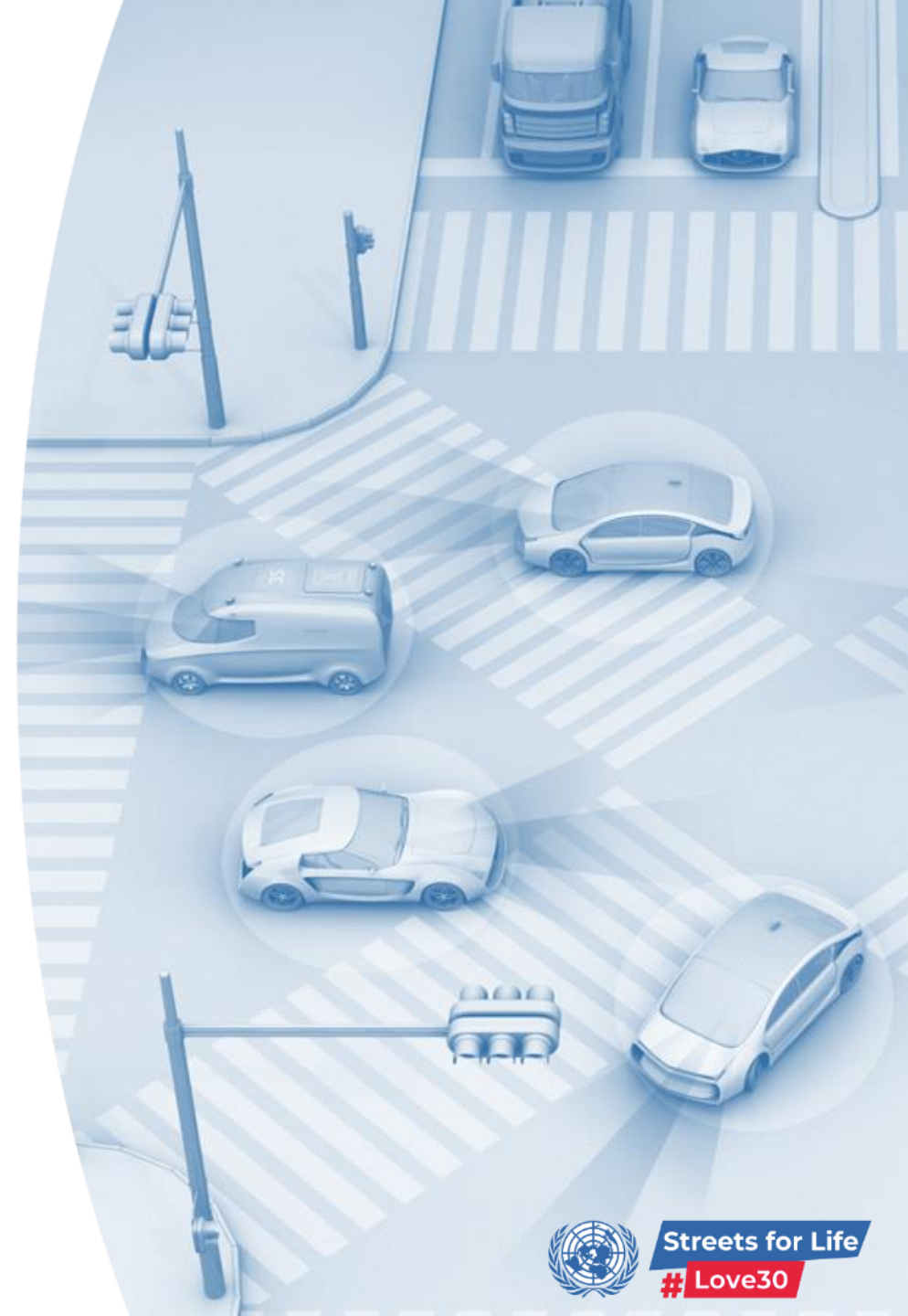
- **SHOW Partners**  
83 partners from 13 EU-countries
- **Duration of the project**  
48 months  
(January 2020 - January 2024)
- **Framework Programme**  
Horizon 2020 - The EU Framework Programme  
for Research and Innovation - Mobility for Growth





# Background

- The **arrival of automated vehicles (AVs)** represents a unique opportunity for a **fundamental change** in urban mobility, especially when AVs are integrated into public transport network as well.
- Shared and connected fleets of AVs could **dramatically reduce the number of conventional cars, improve safety** and reach people and places that was too difficult to before, plugging first/last-mile gaps and feeding into public transport trunk lines.
- Therefore, **technical solutions** of sustainable urban transport, **business models and priority scenarios** for impact assessment are needed by deploying shared, connected, electrified fleets of AVs.



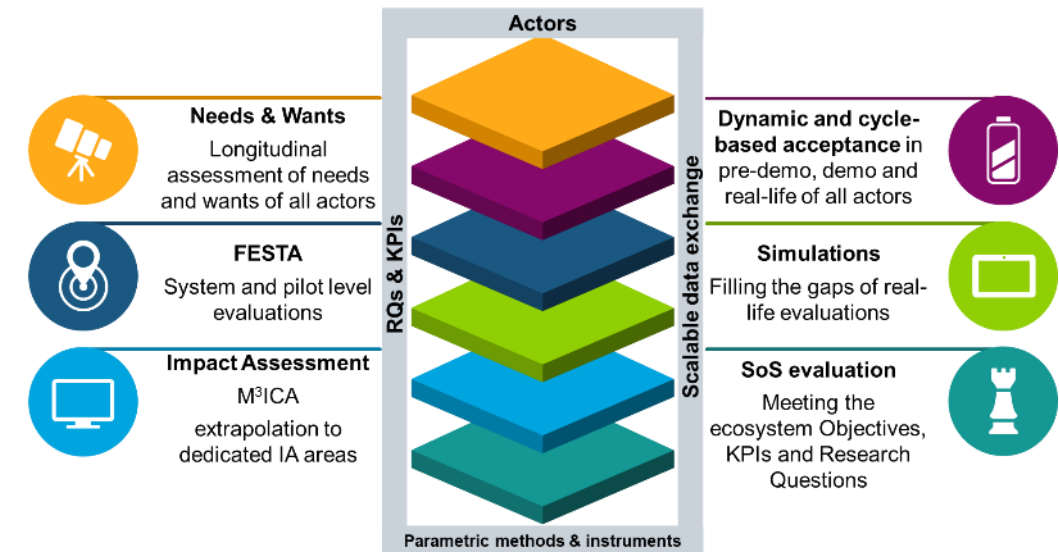
# SHOW Objectives

- Conduct **real-life urban demonstrations** taking place in 20 cities in Europe for at least 12 months.
- Develop **technical solutions and business models** to enhance travelers' experience in cities.
- Deploy shared, connected, electrified **fleets of autonomous vehicles** for shared mobility.



# SHOW Methodology

- The SHOW methodology encompasses several layers starting with the **investigation of the expectations of travellers and stakeholders** and completing with the **final evaluation of the ecosystem**.
- The results consist of **findings from the user tests (FESTA), impact assessment (M3ICA)** and **simulations**.
- The SHOW methodology includes four main pillars:
  - Use Cases and their actors
  - Research Questions (RQs) and Key Performance Indicators (KPIs)
  - Parametric methods and instruments
  - Scalable data exchange



# SHOW Demonstration

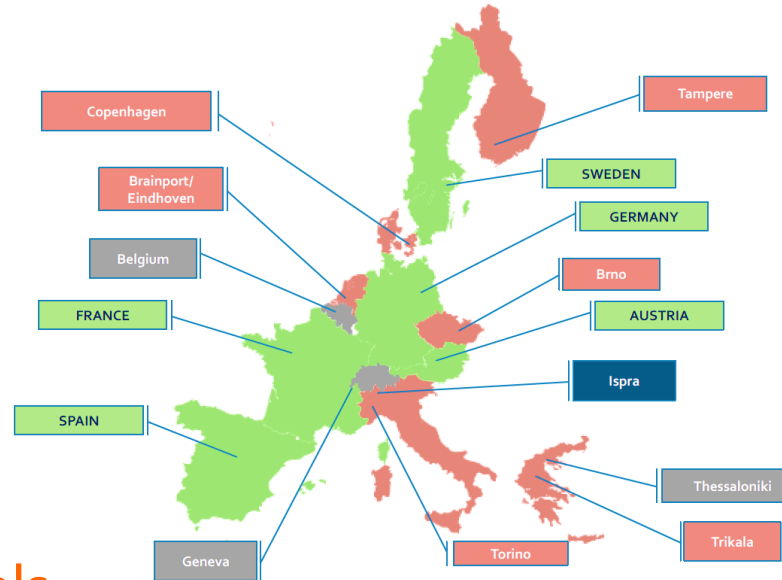
- Fourteen **demo sites**
  - 5 Mega demo sites
  - 6 Satellite demo sites
  - 3 Follower demo sites



- Four different **services**
  - Public Transport (PT)
  - Demand Responsive Transport (DRT)
  - Mobility as a Service (MaaS)
  - Logistics as a Service (Laas)

- Multiple **use cases** within services

- Numerous supportive **simulation tools**

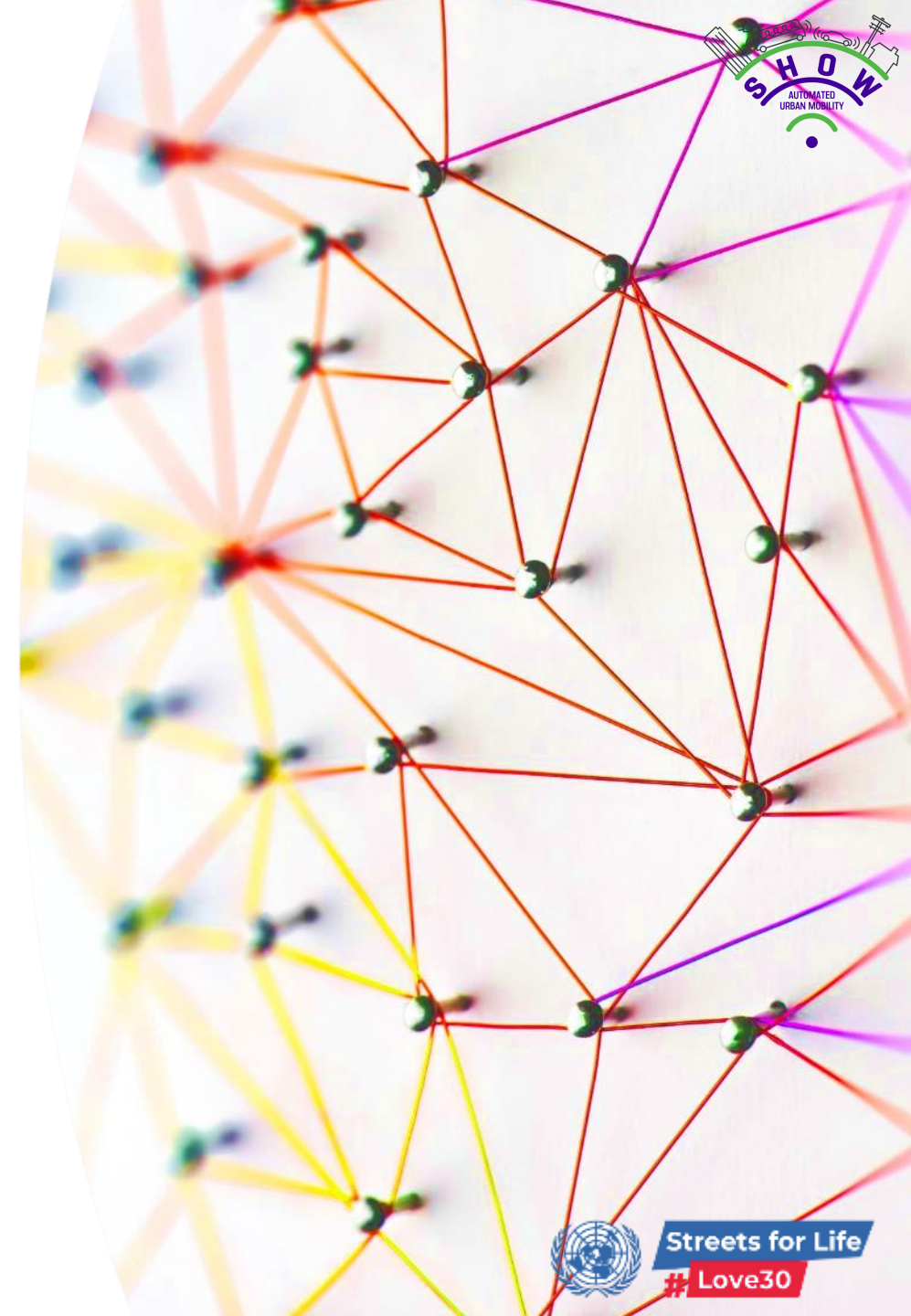




# Impact Assessment

The overall SHOW **eco-system impact assessment framework** includes KPIs as calculated from the in-depth analyses from the different impact areas, and potentially non-processed **KPIs** collected from demonstration sites and simulations:

- Road safety
- Traffic efficiency, energy, and environmental impact
- Societal, employability and equality
- Urban logistics
- User experience, awareness and acceptance



# Scientific and Social Impact

- How shared mobility solutions using connected and cooperative automated vehicles can contribute to a more **sustainable, inclusive and safer mobility system**.
- Proposed actions for integration of **safe, acceptable and efficient mixed transport services** for all road users.
- **Improvement of market opportunities** and new-entrants by addressing and developing innovative cross-sector business models.
- Advanced **monitoring and assessment** for faster implementation.





# Future Challenges

- Establish straight-forward techniques for the **safety and impact assessment** of autonomous vehicles.
- Integrate the KPIs and data analytics to form a **holistic road safety assessment protocol** for all conditions and user groups and validate the protocol on data from the real-world applications.
- Develop well-defined and concrete automation strategies for a **wider social adoption and road safety enhancement**.







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