Assessing social and environmental impacts of an Autonomous shuttle service to improve transport connectivity in underserved areas

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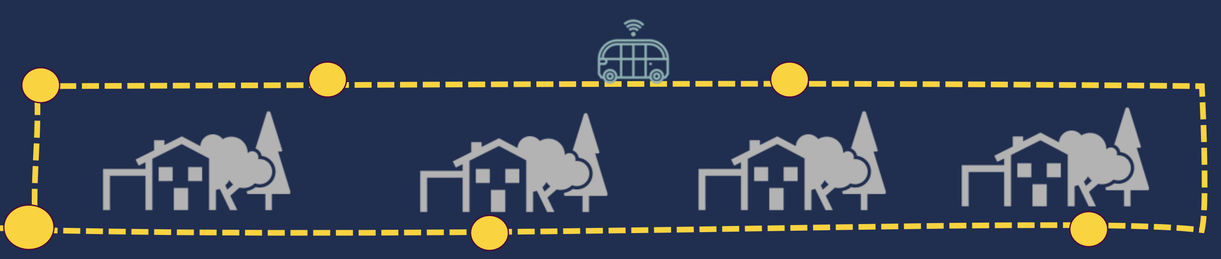
The issue

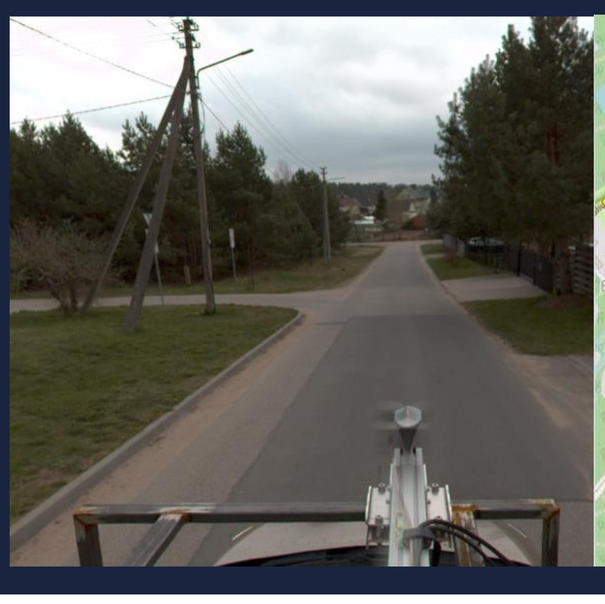
- Underserved communities in rural areas face mobility challenges due to limitations in digital connectivity and transport infrastructure.
- Automation and shared mobility can offer innovative solutions and have the potential to tackle these challenges.

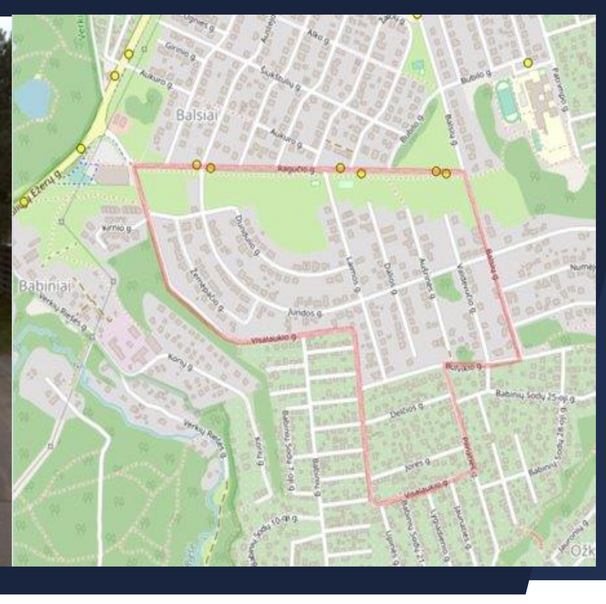
Research Goals

- Joint Pilot Action (JPA) to test and explore socio economic and environmental impacts of an autonomous electric shuttle (AES) service in Vilnius under a joint pilot action (JPA) to improve transport connectivity for suburban areas and access to public transport (PT) stops



We aim to provide a better framework for assessing the costs and benefits of promoting higher levels of automation in specific contexts, as the advantages of using autonomous vehicles over human drivers are not yet fully clear





Methodology

Testing 12-seat L4 AES service in Vilnius suburban areas:
Methodology involves testing AES on 2-3 km closed-loop routes, escorting children to/from school and connecting adults to/from bus stops. Viability and effectiveness will be assessed.

Addressing transportation challenges in Vilnius suburbs:
Methodology includes criteria selection for Pilot territory: PT service accessibility, infrastructure, population, jobs, educational institutions, and city's general development plan priorities. AES aims to provide sustainable transportation alternative.

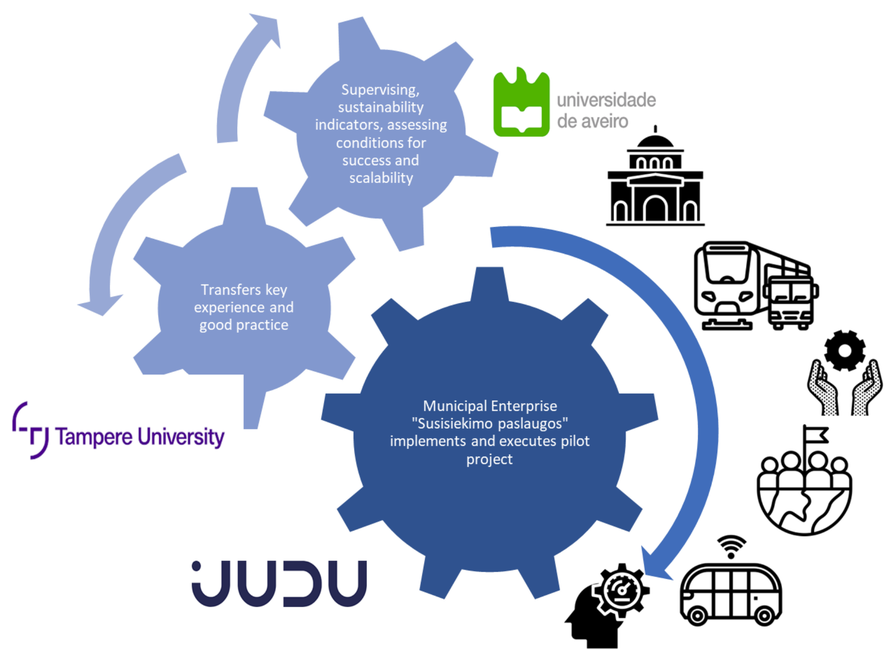
Assessing sustainability and socio-economic impacts of AES service:
Methodology employs tools like Cost-Benefit Analysis, Environmental Impact Assessment, Community Impact Assessment, Stakeholder Analysis, and surveys to evaluate sustainability and socio-economic impacts of AES effectiveness of the service and identifying areas for

Partner roles and stakeholders in implementation project:

EMBRACER:
10 Partners

JPA partners
include University of Aveiro (UA) and Tampere University (TU).

Key stakeholders
are local partners, Vilnius Municipality specialists, and suburban residents benefiting from AES service.



Preliminary Results and Findings

Encouraging sustainable travel choices in low density areas
Project partners aim to address mobility challenges in peripheral communities to encourage sustainable travel choices.

Assessing Impacts of automation
The project aims to clarify the extent to which AES can affect safety efficiency, enhance accessibility, reduce labor costs, and provide a better passenger experience.

Improving policy
The local **Sustainable Urban Mobility Plan (SUMP)** will be improved by adding a new chapter that outlines long-term goals and assesses the potential benefits of autonomous vehicles use.

ECIU partners fostering Multisectoral collaboration for automated mobility in underserved areas:
To achieve effective benefits, it is crucial to involve various sectors such as government, private companies, and community organizations. Collaborative efforts can help identify the specific needs of underserved areas, develop tailored solutions, and ensure that the benefits of automated mobility are distributed equitably.

Acknowledgments

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