



Mobilità connessa, cooperativa, automatica: l'esperienza di PAVE Europe

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**Partners for Automated
Vehicle Education**

16 January 2024



Associazione Italiana
della Telematica
per i Trasporti e la Sicurezza

Where are we with Autonomous?

Source: Gartner,
2015



Where are we with Autonomous?



AVs are now entering a new phase of scaling and expansion—one that will make 2024 a pivotal year in which AVs can start to benefit more people in more places.

The global race for autonomous mobility

MIT
Technology
Review

A race for autopilot dominance is giving China the edge in autonomous driving

Electric vehicle makers and AI companies are taking Tesla FSD-like systems to China, but it's still out of reach for most consumers.

By Zeyi Yang

August 15, 2023

Baidu's Apollo Go is China's pioneer of driverless airport travel



Federal Ministry
for Digital
and Transport

Germany will be the world leader in autonomous driving

UK government funding helps launch world's first autonomous bus in Edinburgh

From spring 2023, the world's first self-driving bus will help revolutionise public transport and passenger travel in Edinburgh by better connecting rural communities and reducing road collisions that are often caused by human error.



Credit: Edinburgh



Oxa software to be used in Beep autonomous vehicles in the US

BY TOM STONE ON AUGUST 25, 2023

AUTONOMOUS VEHICLES & ADAS

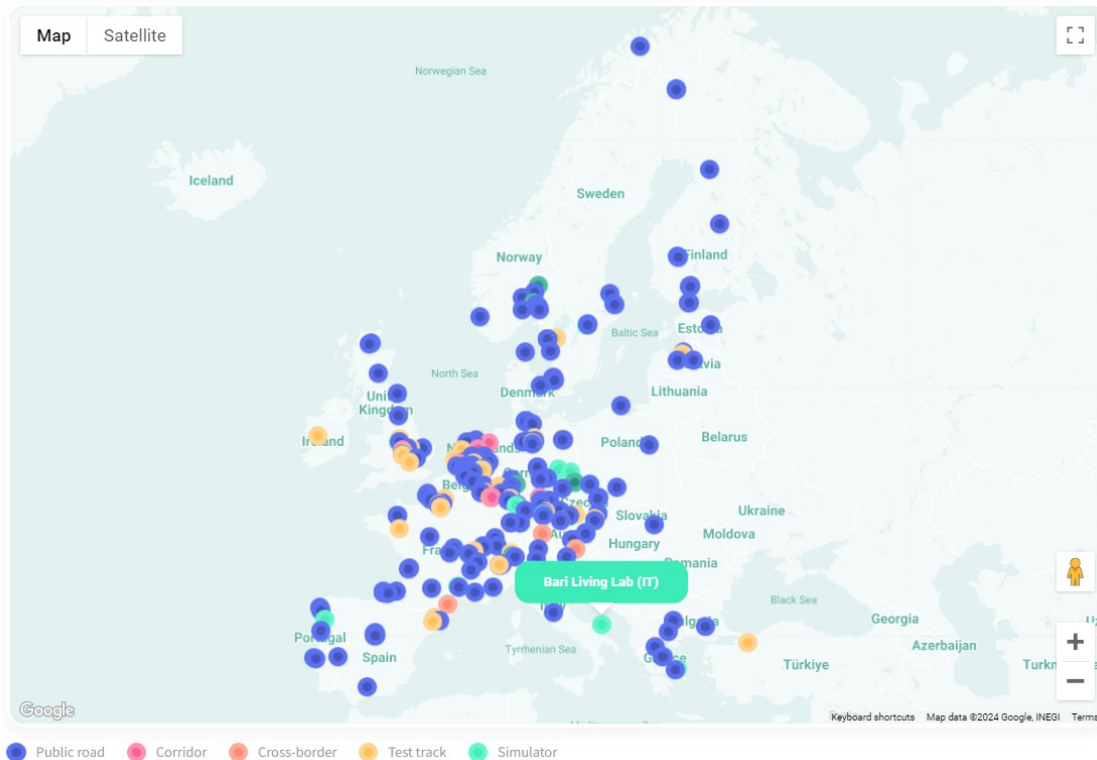
USE CASES



CCAM Tests and Demonstrations in Europe



EU-WIDE KNOWLEDGE BASE



- Passenger Car: 46%
- Shuttle: 42%
- Bus: 2%
- Truck: 8%
- Autonomous delivery robot: 2%

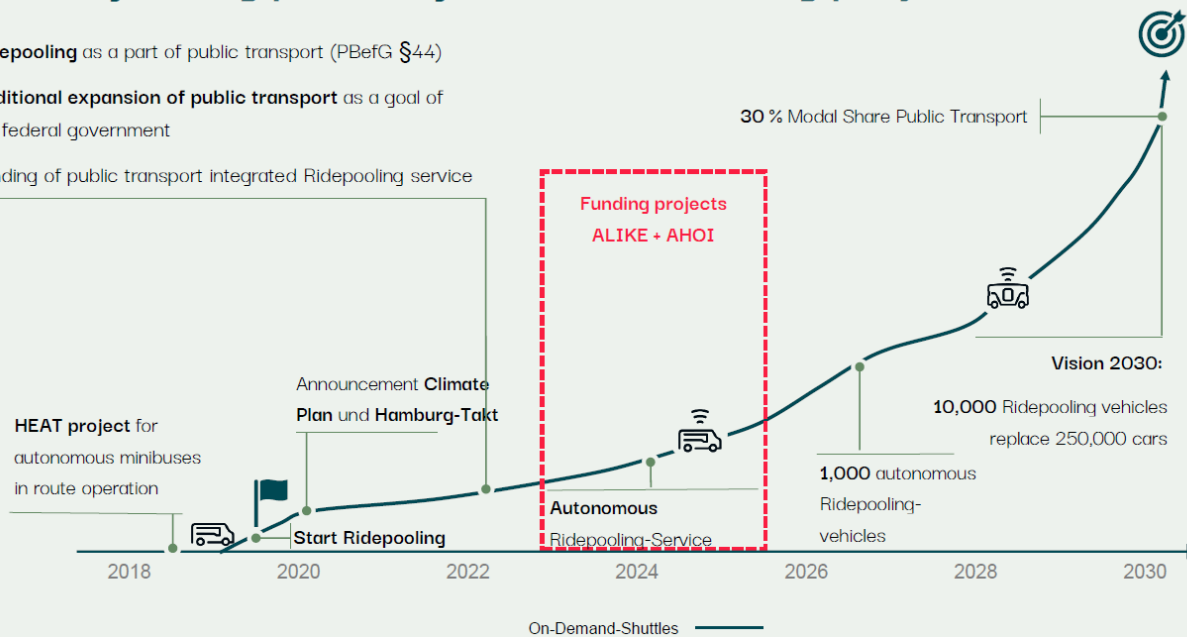
Case Study: Hamburg

The path to 10,000 autonomous shuttles is currently being paved by two main funding projects

Ridepooling as a part of public transport (PBefG §44)

Additional expansion of public transport as a goal of the federal government

Funding of public transport integrated Ridepooling service



Credit: New Mobility Solutions Hamburg



Autonomous driving: Up to 10,000 autonomous vehicles on Hamburg's roads by 2030 integrated into the public mobility system



Case Study: Oslo

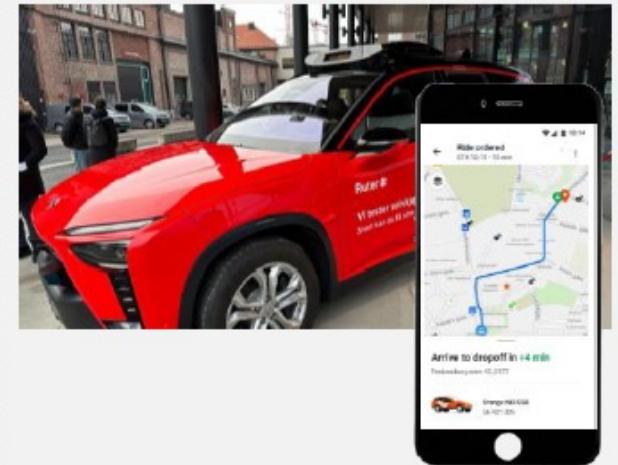
Pilot service in Groruddalen

On-demand ridesharing

- ✓ Point-to-point
- ✓ Integrated with PT
- ✓ Virtual pick-up and drop-off points
- ✓ 15-30 vehicles
- ✓ Up to 90 km/t



Service operational with
passengers
(2024)



Case Study: Goods delivery in UK



Goods Delivery: **Shuttling**

- Contract signed in February 2021
- Oxa selected as Ocado's Autonomy partner for all movements of goods outside their facilities including hub to hub, and last mile
- Partnership extends to Ocado Retail, Morrisons in UK and 8 grocery chain partners globally including Coles, Kroger, Casino, and AEON
- Total turnover of global partners c.\$320bn



"The collaboration with Oxa is a key component in allowing us to develop autonomous mobility solutions that are purpose-built for the unique demands of the online grocery space."

Alex Harvey
Chief of Advanced Technology,
Ocado Technology

Credit: OXA

Regulatory Frameworks: EU safety rules

EU-Wide type approval for AD

EU General Safety Regulation (EU) 2019/2144

NEW RULES ON VEHICLE SAFETY AND AUTOMATED MOBILITY

6th July 2022

PRESS RELEASE: [New Vehicle General Safety Regulation \(europa.eu\)](https://europa.eu/press-release)



Further measures to be progressively introduced between
JULY 2024 TO JULY 2029

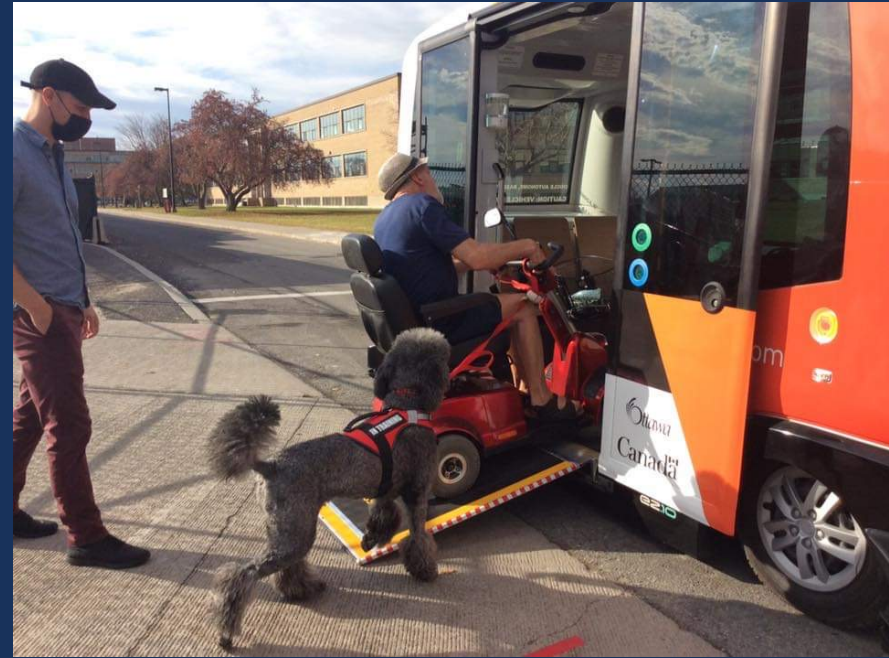


- ADS type approval already possible in EU
 - Coordination EU/National/Local level
- Strict rules based on UNECE and others
- Compliance assessment
 - Various traffic scenarios
 - Minimum risk maneuver
 - ADS safety concept and audit
 - Validation tests
 - Principles for creditability and reporting
 - In-service monitoring and reporting
- Guidance for harmonised implementation

Regulatory Frameworks: National

- **United Kingdom:** Automated Vehicles Bill 2023 – legislative framework ready
- **Germany:** legislative framework ready
- **France:** legislative framework ready
- **Switzerland:** The government is currently preparing regulations on automated driving by early 2025. Parliament has granted the Federal Roads Office FEDRO the power to authorize pilot trials
- **Netherlands:** guidelines and legislation to allow testing of AVs on public roads
- **USA:** different approach (eg Robotaxi in San Francisco, Phoenix, Austin, LA, etc).
- **China:** dec 2023 national safety guidelines for the use of autonomous vehicles (AVs) to form the basis of a regulatory framework that will be applied across the entire country

Opportunity for the Society



Safety Mobility for All Sustainability

Efficiency Economic Growth Driver Shortage

...and challenges...

Regulation

Technology

Infrastructure

Trust and acceptance

Loss of control

Behavioral changes

Skill requirements

Fear of job loss

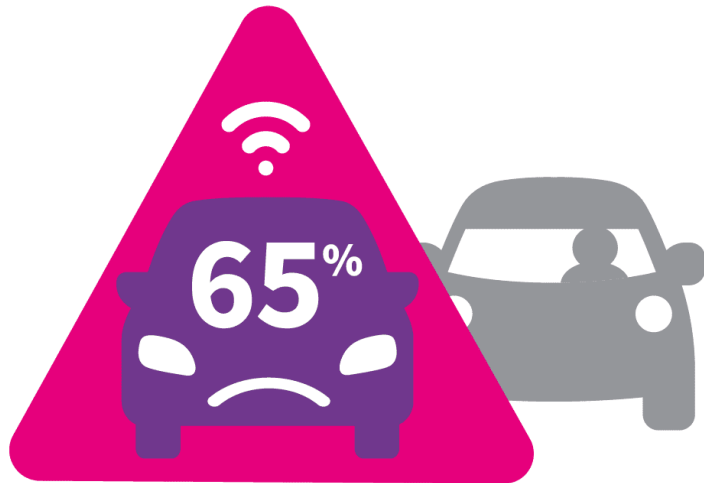
Cybersecurity

...



Humans are not yet ready for Autonomous

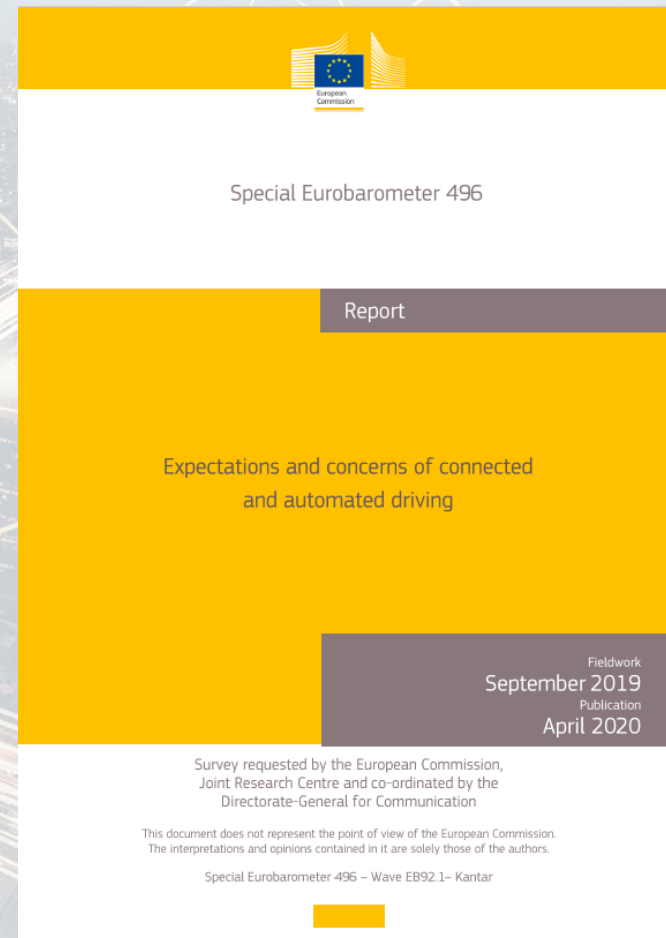
Many people worldwide don't have confidence in self-driving cars.



Nearly **two thirds** of people globally would **not feel safe** in a self-driving car.

Source: 2021 Lloyd's Register Foundation World Risk Poll

Visit the website at lrfworldriskpoll.com

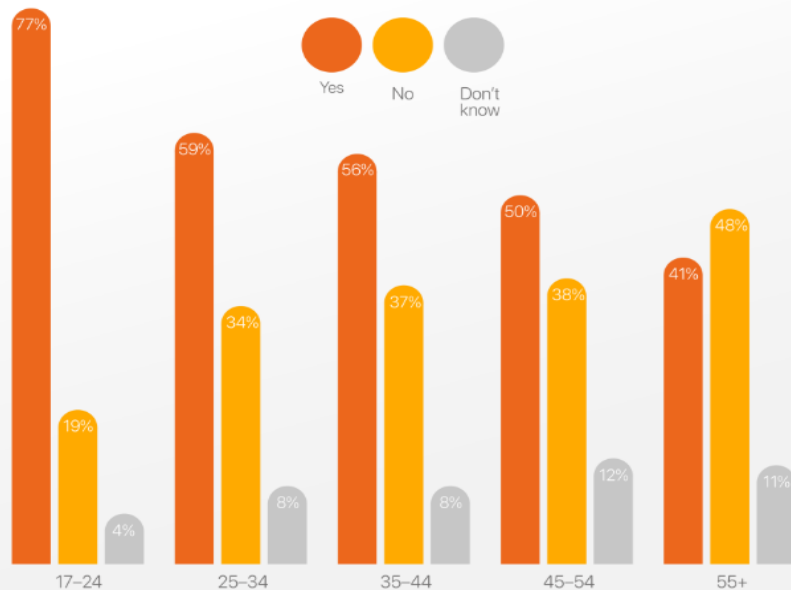


Humans are misinformed about Autonomous

Thatcham Research | Trust in Automation Survey

Do you think it is possible to purchase a car today that can drive itself?

Yes No Don't know



52%

of **UK** drivers believe that it is possible to buy a self-driving car today

44%

would wait for the technology to mature

PAVE EUROPE

A nonprofit coalition that seeks to **raise the level of public knowledge** of automated vehicle technology **and the potential benefits** for safety, mobility, equity and efficiency.

Born out of a desire to drive human adoption of autonomous technology



PAVE Europe's Mission



Educate the public about fully autonomous vehicles.



Serve as a reference on autonomous vehicles.



Collaborate with the public sector on AV initiatives.



Address end-users' concerns to maximize the adoption of AV technology.

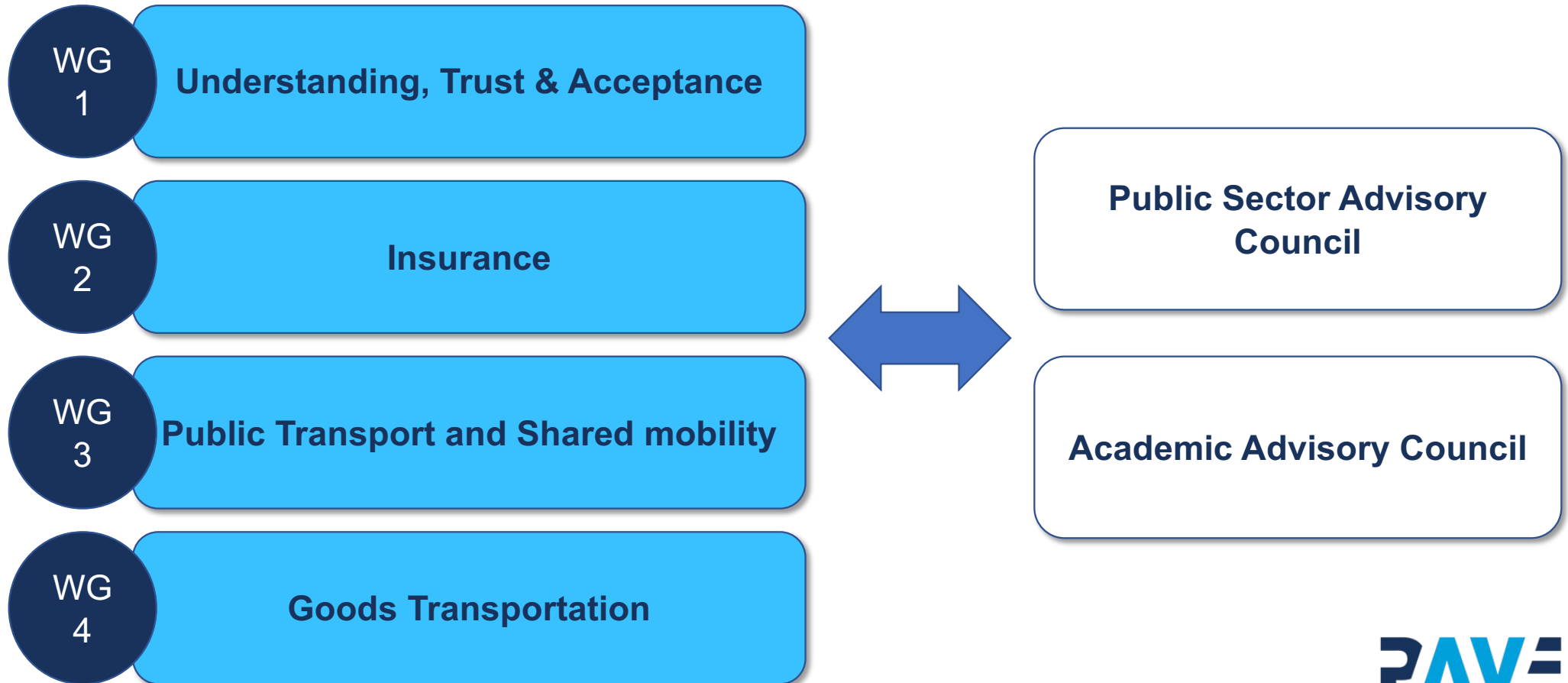


Unify and align AV stakeholders.



Connect industry with other technology, safety and regulatory stakeholders.

Working Groups and Advisory Councils



PAVE becoming an international network



* In development

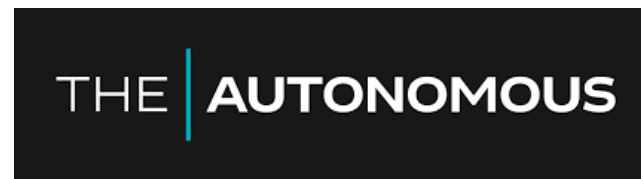
Selection of all PAVE members worldwide



PAVE Europe Members: growing community



PAVE Europe: Partnerships in autonomous



Collaboration between PAVE Europe and TTS Italia on autonomous mobility



Support the development of sustainable mobility in Italy.



Exchange of good practices



Definition and dissemination of common contents for education



Education of the public sector and Italian citizens on the potential benefits of AVs



Focus on the ethical, social, and environmental aspects of AVs



Work on joint publication of papers and articles to raise awareness among about safe autonomous mobility.



PAVE EUROPE

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VEHICLE EDUCATION

JOIN US

in our conversation with the public
about the future of transportation.



www.pavecampaigh.eu



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