How to support fast innovation by different levels of Physical and Digital Infrastructure measures?

15 - 15 May 2020

Poll results

slido

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Participants' stakeholder category

0 6 7

consultency horizontal city adminsitration
european commission industry
ict provider
research organisation
agencyregion phd student
signing
solution
mobility nra consultancy semiconductor
safety users markings)
mobility club
tier1
oem
research
resarch + start up
provider
startup sme
service provider v2x national
transport
nonprofit visionary highway
government public authority
road operator
testbed public engineering service
government agency research organization technology provider cardata
consultant
research institute
road administrator
city network

Multiple-choice poll (Multiple answers)

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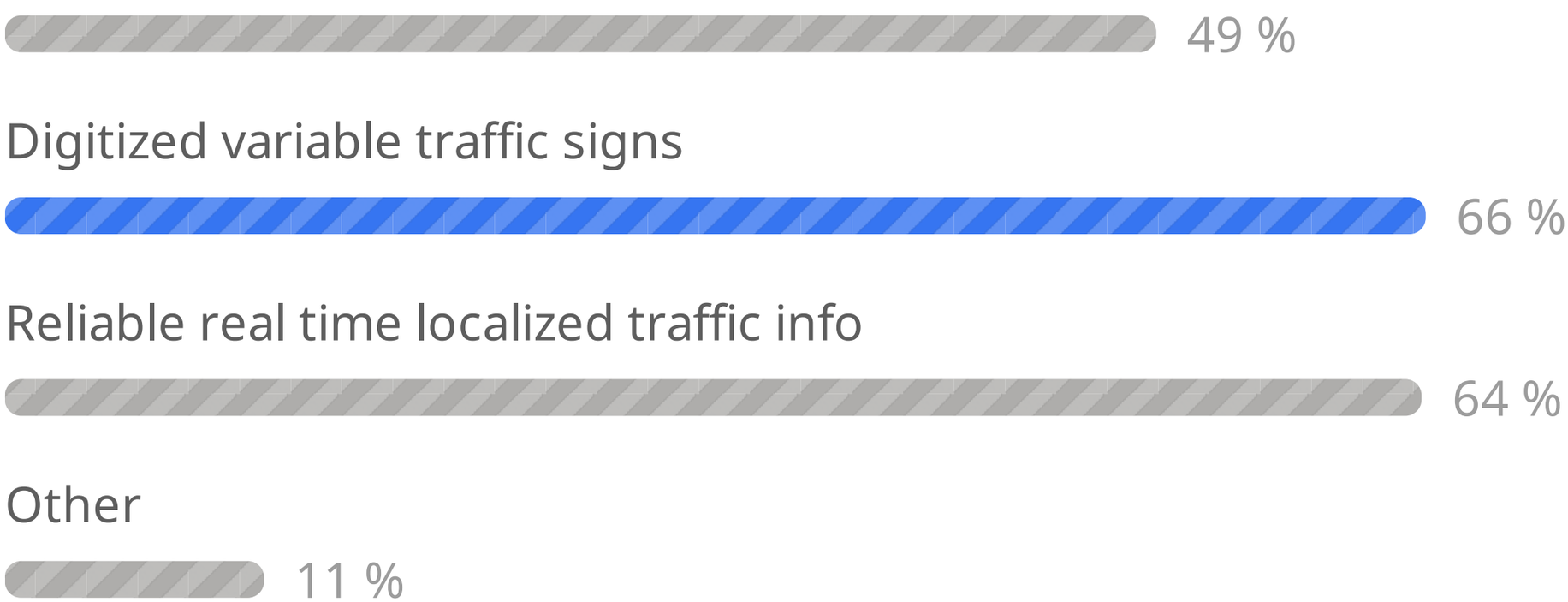
Digital infrastructure measures (1/4)

0 6 1

Which digital infrastructure measures do you think will be available throughout Europe during the 2020´s? On Highways



Digital infrastructure measures (2/4)

If you have selected other, please specify

- digital traffic regulations
- Clear visible pavement markings for machine vision
- Sharing intentions via V2X (generalized derivate of platooning)
- V2X (DENM) warnings
- Geen van deze.
- 5G Networks, Platoon capabilities
- Standardized Vehicular communication
- effective cross-border and cross-operator hand over digital twin for frequent scenario simulation

Multiple-choice poll (Multiple answers)

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Digital infrastructure measures (3/4)

0 6 0

Which digital infrastructure measures do you think will be available throughout Europe during the 2020´s? In Urban environment

Digitized traffic lights

70 %

Reliable real time localized traffic information

58 %

Other

7 %

Digital infrastructure measures (4/4)

If you have selected other, please specify

- None of these
- 5G, Platooning
- V2I communication (traffic lights)
- Aktive traffic management

Multiple-choice poll (Multiple answers)

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Infrastructure services (1/3)

0 6 5

Which infrastructure services would enable seamless automated driving on motorways/ in urban spaces?

(1/2)

Standardized physical infrastructure elements

51 %

Digitalized traffic regulation

65 %

Static road traffic information

18 %

Dynamic road traffic and safety information

69 %

Traffic management information

46 %

Multiple-choice poll (Multiple answers)

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Infrastructure services (1/3)

0 6 5

Which infrastructure services would enable seamless automated driving on motorways/ in urban spaces?

(2/2)

Traffic management support

34 %

Collective perception information

32 %

Fleet control

17 %

Other

5 %

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Infrastructure services (2/3)

If you have selected other, please specify

- Truck shouldn't be allowed in the cities. Use hubs to facilitate first and last mile operations
- Guidance
- At each lamp post a sensor!

Which services should be further developed within the next years?

005

vehicular communication

v2i **v2x** glosa

connectivity (cellular)

Multiple-choice poll (Multiple answers)

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Minimum Risk Manoeuvre (1/2)

0 4 2

What do you expect a CAV will do in case of a Minimum Risk Manoeuvre?

Drive carefully

43 %

Execute a diversion

19 %

Stop in lane

14 %

Park at safe harbour

45 %

Other

7 %

Open text poll

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Minimum Risk Manoeuvre (2/2)

003

If you have selected other, please specify

- Hand-over
- To be able to decide what is the safest option in the current situation.
- Depending on situation

Multiple-choice poll

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Which TransAID service for infrastructure-assisted driving do you consider to be most realistic?

0 3 5

Provide vehicle path information

26 %

Provide speed, headway and/or lane advice

57 %

Traffic separation

6 %

Guidance to safe spot

6 %

Orchestration, distribution and scheduling

6 %

Multiple-choice poll

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Remote control (1/2)

0 3 6

What do you expect of remote control?

Extended environmental awareness

28 %

Mission management

14 %

Autopilot assistance

36 %

Remote driving

22 %

Other

0 %

Multiple-choice poll

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Remote monitoring (1/2)

0 3 4

Remote monitoring and control centres should be owned and operated by:

Vehicle manufacturers

3 %

Fleet owners

18 %

Road authorities

38 %

Qualified entity

35 %

Other

6 %

Remote monitoring (2/2)

If you have selected other, please specify

002

- All of the above, depending on the responsibility of the center. Coordination between centers is needed in any constellation of centers.
- depends: monitoring and operation of vehicles >> fleet owners monitoring and operation of traffic flow and infrastructures >> public authorities and road operator

Which standards organization is best suited for global standardization of infrastructure supported automated driving?

019

Multiple-choice poll (Multiple answers)

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Survey PDI (1/9)

0 2 2

1) What is the most important aspect of infrastructure support for automated driving?

Direct support of vehicle functions (e.g. perception by providing Information on the road ahead)

36 %

Management of mixed traffic situations

59 %

Enabling new mobility services

36 %

Other (please specify)

9 %

Survey PDI (2/9)

1b) If you have selected other, please specify

- Understanding the difference between CAV and non intelligent cars. In Ireland we believe we should be using license plate technology in the mixed flow scenario to identify the level of technology fitted to cars and assist in traffic management
- Digital traffic regulation
- users

Multiple-choice poll

connected automated driving.eu

Survey PDI (3/9)

0 2 1

2) Are the key scenarios for infrastructure - vehicle interaction clear or are there still significant elements open?

Yes, they are clear

38 %

No, some important elements are still open

62 %

Survey PDI (4/9)

009

2b) Which elements are open and have to be specified?

- How do we identify cav traffic versus non intelligent cars in the mixed flow scenario?
- Enforcement of restrictions in case of intended misuse
- Infrastructure scenarios in the transition phase with a mix of CAVs and conventional vehicles, supporting both human drivers, humans supervising partial automation and SAE level 4-5 technologies.
- More elements will emerge once large scale deployment is done and results are evaluated thorough
- International differences Who will make it happen?
- redundancy for vehicle sensors
- responsibility, liability, investment and maintenance cost
- Whole urban situation is open
- human role in the system

Survey PDI (5/9)

0 1 2

3) With which information/data/measures/services can infrastructure support automated vehicles most?

(1/2)

- Location, traffic, speed, conditions and zoning of allowable autonomy
- Occlusions, blind points, ice
- detection of "exceptional" events (static objects, accidents, construction) to give enough time to vehicle to hand over control back to the driver
- Enhancing environment perception and hazard warnings, guidance on the infrastructure support level available.
- Real-time traffic information and conditions of the road ahead
- Road parameters like speed limit, traffic signs, road works Collective routing (solve traffic jams)
- traffic and redundancy for vehicle sensors
- SPAT, MAP, CAM, DENM, SSM, SRM
- tbd

3) With which information/data/measures/services can infrastructure support automated vehicles most?

(2/2)

- Vehicular Communication
- Local traffic situation
- Maps

Survey PDI (6/9)

013

4) What is the most important step to proceed with vehicle-infrastructure interaction?

(1/2)

- Legislation needs to be in place and public acceptance is vital. The public need to know which cars are operating in which modes around them and have a say. This can be done using license plate technology
- OEM openness and transparency
- Identify prioritization Harmonization (international) Standardization
- Identify requirements and standardization needs.
- Standard communication equipments and protocols
- Get support from authorities, work with Open Source Software to speed up the adaptation. This will IMPROVE the business case.
- introduce this regulation as mandatory for new infraestructures
- standardization, avoid dead ends
- cooperation / shared business models
- Effective roll out of infrastructure

Survey PDI (6/9)

4) What is the most important step to proceed with vehicle-infrastructure interaction?

(2/2)

- Standard communication protocol
- Trust
- Finance

Multiple-choice poll (Multiple answers)

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Survey PDI (7/9)

0 2 0

5) What are the key uncertainties related to infrastructure - vehicle interaction?

(1/2)

Way and extent of support provided from the infrastructure for vehicles

45 %

Support needed by vehicles

25 %

Future technical capabilities of vehicles

45 %

Future technical capabilities of infrastructure

40 %

Availability of all road signs in a digital way

50 %

Multiple-choice poll (Multiple answers)

connected automated driving.eu

Survey PDI (7/9)

0 2 0

5) What are the key uncertainties related to infrastructure - vehicle interaction?

(2/2)

Availability of traffic rules in a digital format

35 %

Future traffic management measures and requirements towards infrastructure and vehicle interaction

50 %

Other (please specify)

15 %

Survey PDI (8/9)

5b) If you have selected other, please specify

- Support from Road Authorities
- users' behaviours
- Financial issues, who pays?

Survey PDI (9/9)

021

6) Do you expect that the change of way of life & mobility due to COVID19, including the current reluctance to shared mobility, will last and be deep, hence influencing the potential of the combination of CAVs and shared mobility?

Yes, there will be significant influence

24 %

Yes, but only to small extent

62 %

No, there will be no influence in the long term

14 %