



Law & Robots Workshop 2020

Digital unterwegs. Herausforderungen, Lösungsansätze & Zukunftsszenarien

Neu als online Veranstaltung!

19. November 2020
14.00 - 18.00 Uhr

~~28. Mai 2020
9.15 - 18.00 Uhr~~



Ministerie van Infrastructuur
en Waterstaat



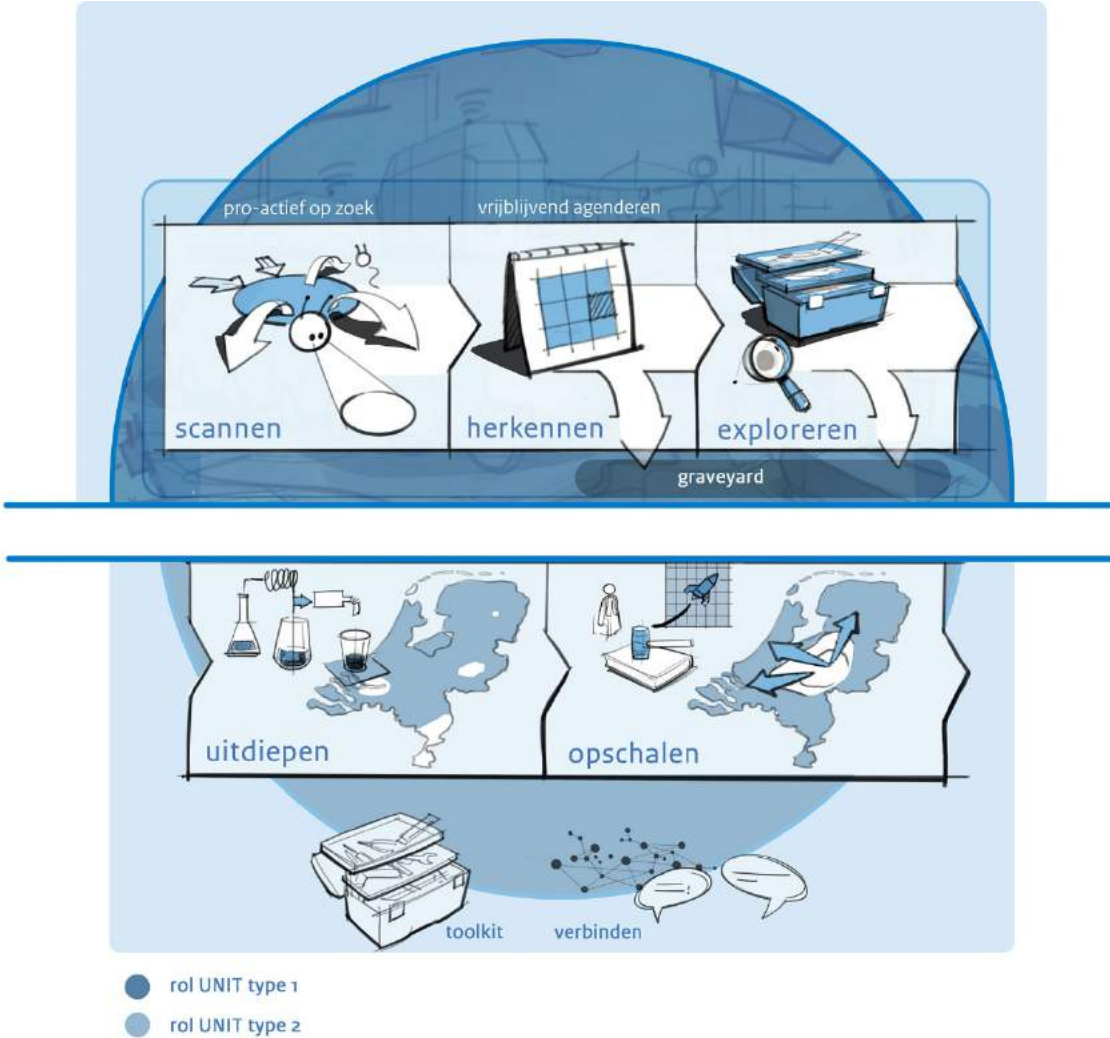
Digital Unterwegs: Auto als Lenker?

Diplm. Ing Arjan van Vliet
Generaldirektion für Mobilität
Manager Innovation
arjan.van.vliet@minienw.nl



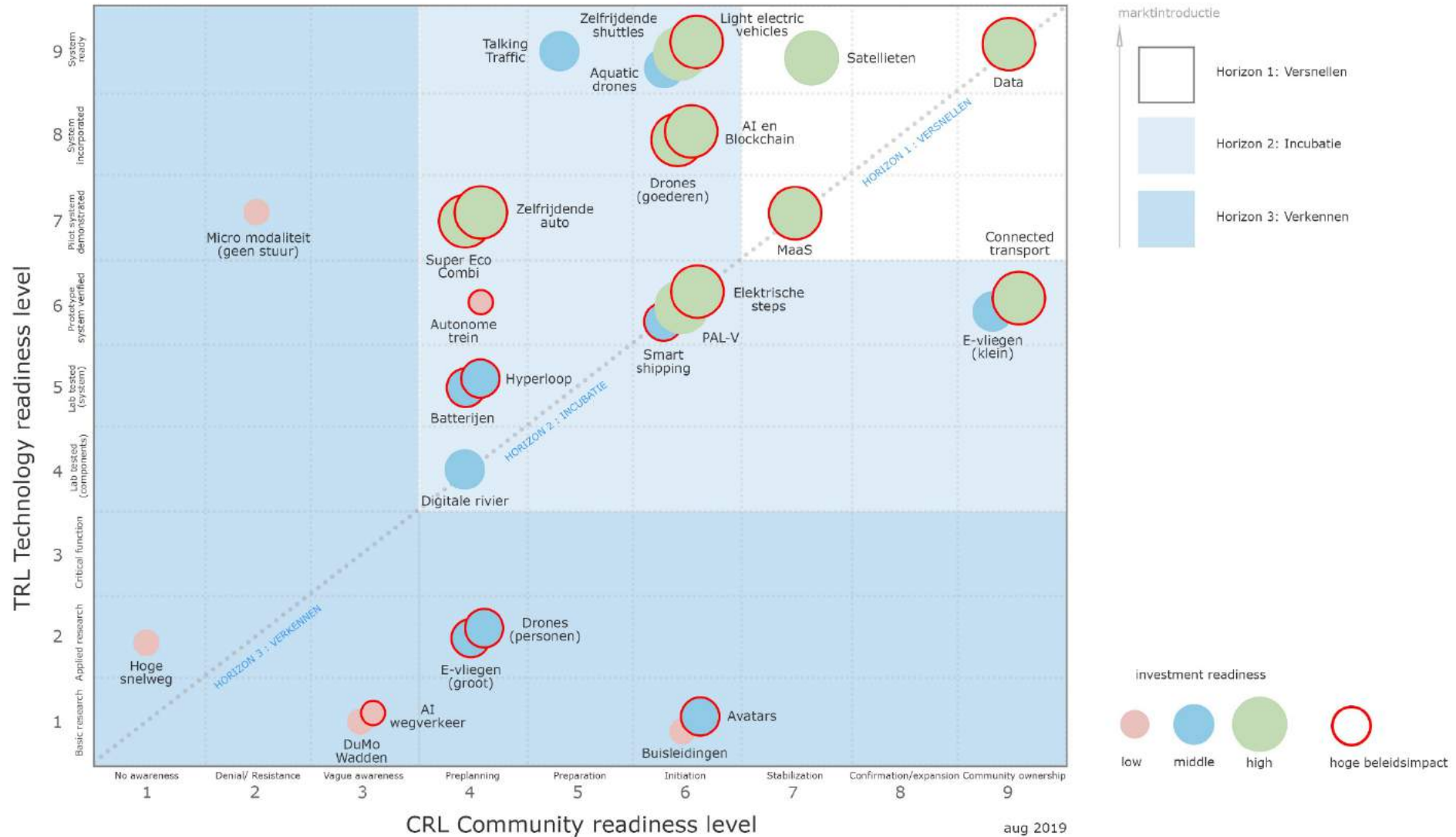
Innovationen in Mobiliteit beschleunigen

- Forschen
- Experimentieren
- Implementieren
- Skalieren





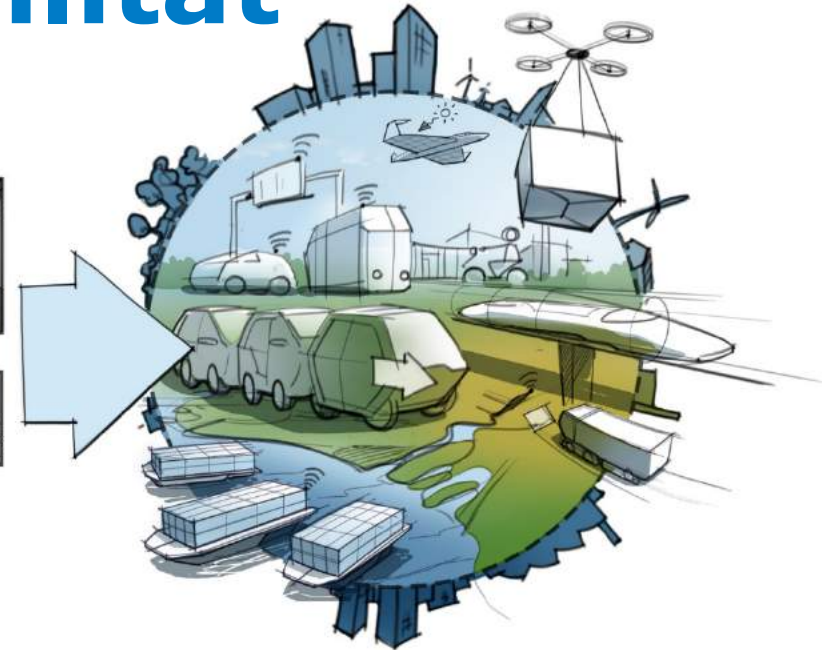
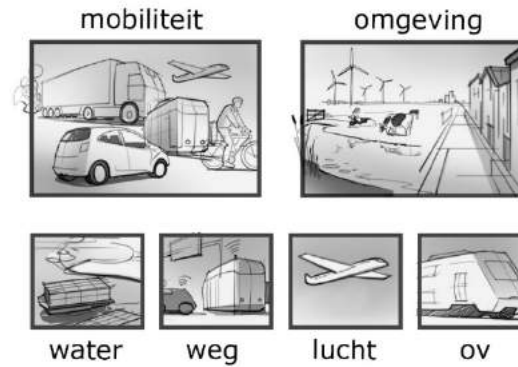
Eine Lösung gibt es nicht



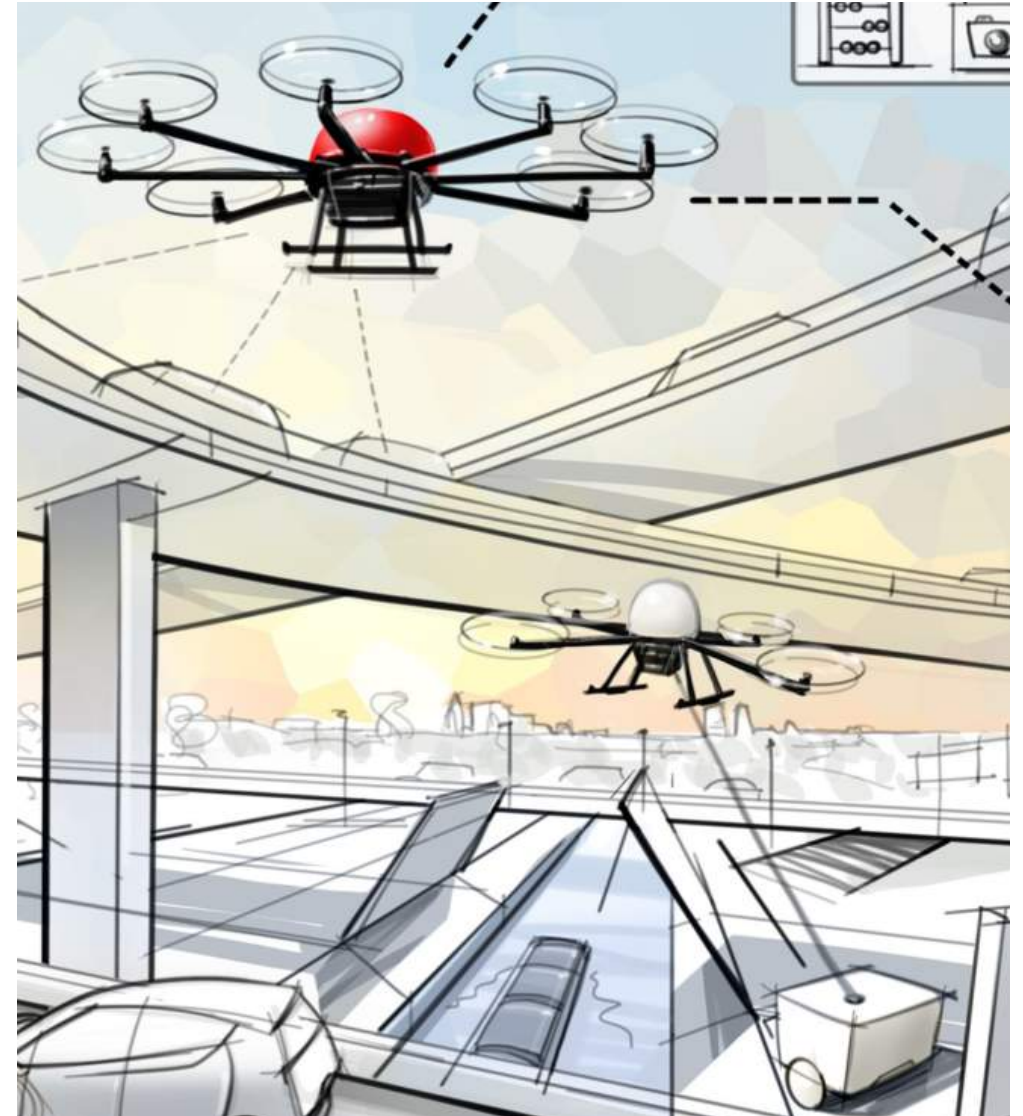


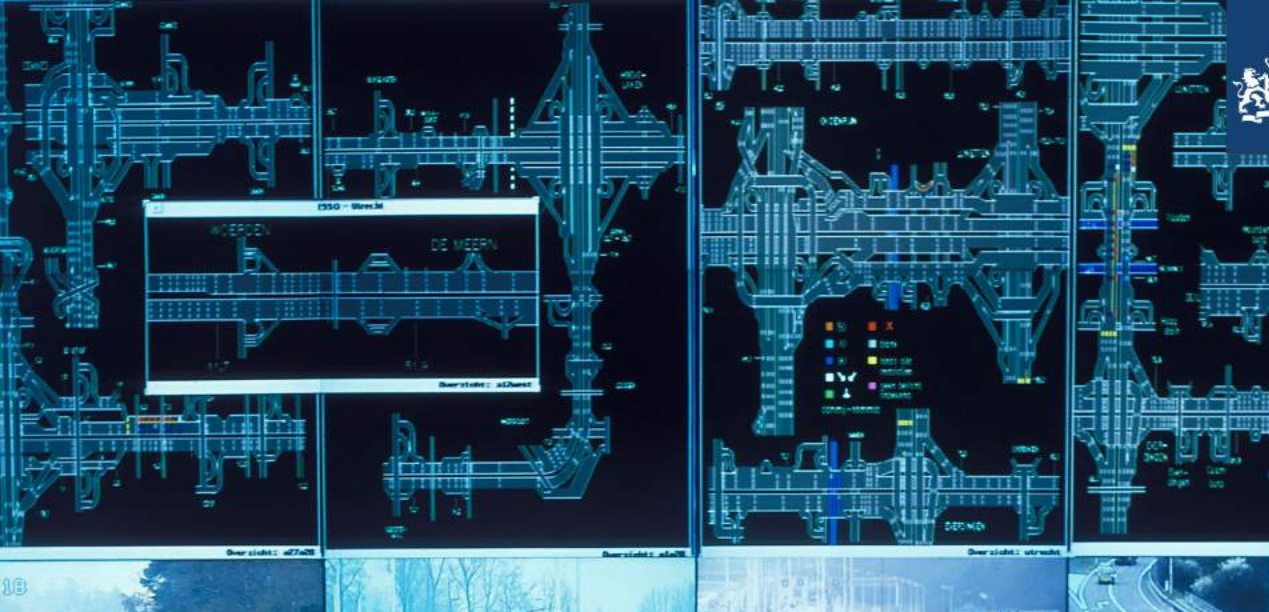
Von Modalität nach Mobilität

Fokus auf Reisende
und Güter



Towards Clean Sky 3: A new Partnership for Clean Aviation under Horizon Europe





Digitale Identitäten



Intelligente Infrastructuur



MaaS



Connected Intelligent Transport



Auto als Lenker?

- The decalation of Amsterdam: einen Rückblick auf 2016
- Die Gegenwart
- Zukunftsszenarien



High Level Meeting

On 14 April 2016 at the Informal Transport and Environment Council in Amsterdam, 28 EU Ministers of Transport endorsed the Declaration of Amsterdam to work towards a more coordinated approach enabling the introduction of connected and automated driving.

Close cooperation between Member States, the European Commission and industry partners is seen as an important prerequisite for the widespread introduction of innovative and safe technologies in Europe. The Declaration of Amsterdam on Connected and Automated Driving, was an important first step towards a common European strategy in the field and includes a joint agenda for further action to support the shared objectives. Key action points for Member States include the need to address legal and procedural barriers to the testing and deployment of connected and automated vehicles. The Declaration of Amsterdam also called for the establishment of a high-level advisory dialogue for Member States to exchange views and best practices regarding the development of connected and automated driving and to monitor progress.

The first High Level Meeting, organised by the Netherlands, was held in Amsterdam on 9 February 2015. It was attended by no less than 44 Member States, the European Commission, Greece, Canada, Korea and Sweden of the European Commission and a industry partners. The agreed informal discussion made it possible to identify common steps to enable further progress in the introduction of connected and automated driving on the transport's roads. Together with all participating parties, we agreed on the next steps required, as shown in the declaration below.

Declaration of Amsterdam
The Declaration of Amsterdam was endorsed by the transport ministers of all 28 Member States during the informal meeting of the Transport Council of 14 April 2016 in Amsterdam. The Declaration sets out a foundation for the next steps necessary for the development of connected and automated driving in Europe in the EU. In the Declaration the Ministers of the European Commission, 28 Member States and the transport industry pledge to set up a common regulatory dialogue on connected and automated vehicles to be conducted in the next months.

The Declaration of Amsterdam working agenda, shows the commitments to April 2016. The declaration has gained many more to follow. These include European assessment systems and CENs (Digital Signature) standards, common technical and national standards which have national policies and actions to make connected and automated driving a reality.

2

ISO proposal

5 Driving License

- For the specific use cases / Operational Design Domain's, the AI-software obtains the driving license (ISO certificate) = stepped admission.
- The innovation strength / reliability of a manufacturer counts.
- RDW will give approval after licensing by CBR = compliance with the digital driving license methodology

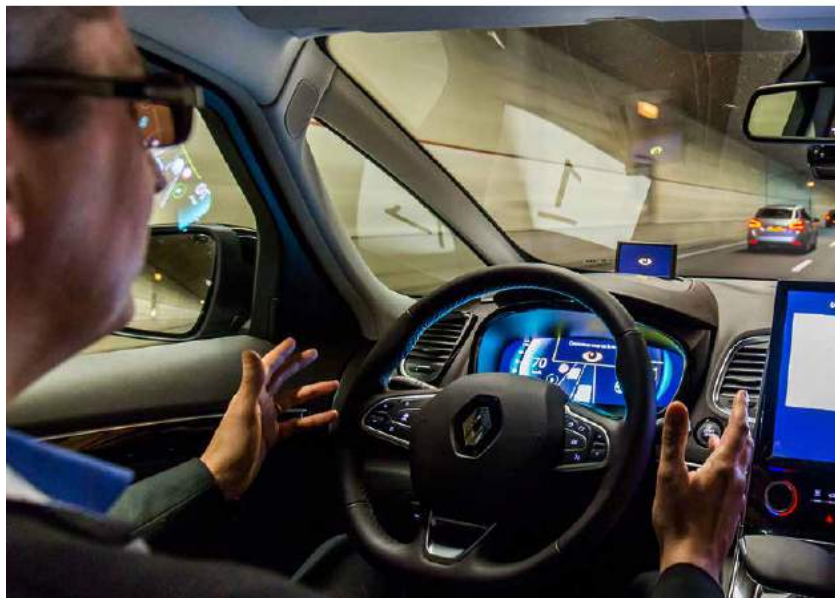




On our way towards connected and automated driving in Europe

[Outcome of the first High Level Meeting](#)

Amsterdam, 15 February 2017



At the High Level Meeting held in Amsterdam on 15 February 2017 the participating Member States, the European Commission and the automotive and telecom industry:

1. agreed to continue the High Level Meeting on connected and automated driving;
2. expressed support for a joint European approach;
3. considered willingness to share vehicle data contributing to traffic safety and congestion reduction and the set-up a public private data task force;
4. the European industry is actively striving towards rapid development of V2V and V2I;
5. considered the need for cross border testing;
6. emphasized the need for close cooperation in UN-ECE;
7. agreed to work together on coherent national, international and European regulation;
8. agreed to elaborate this working agenda of connected and automated driving.



Conclusions from the 4th High-Level Meeting on Connected and Automated Driving

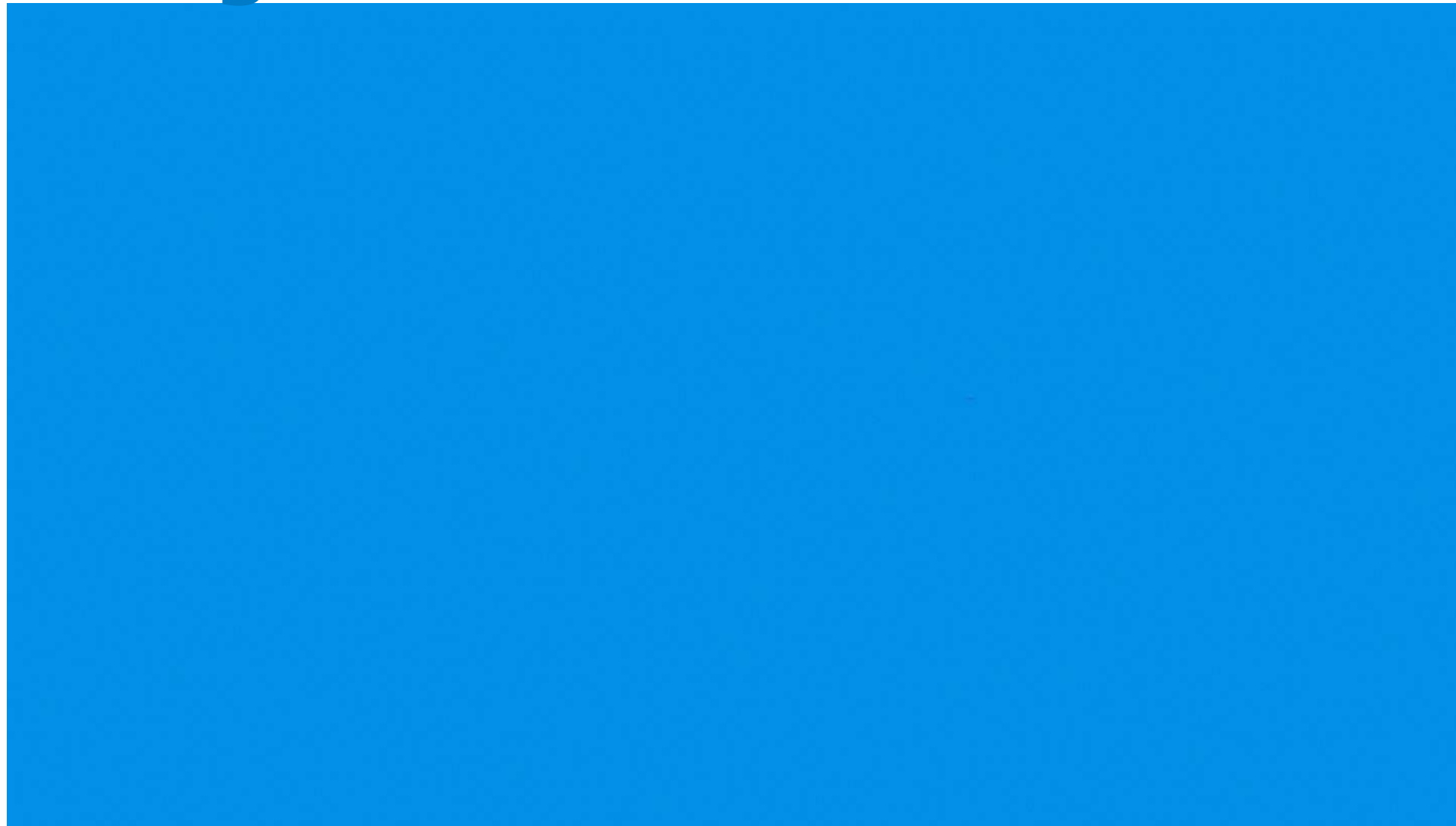
Helsinki, 7 October 2020

The three core themes for the 4th High-Level Ministerial Meeting on Connected and Automated Driving (later HLM CAD)

- 1)** the need to develop and deploy transport automation in a human-centric manner,
- 2)** the need to enhance data sharing between the various stakeholders in the cosystems of transport automation and
- 3)** the need to reform the regulatory landscape concerning transport automation.



Meaningful human control





ETHICS of Connected and Automated Vehicles

Connected and Automated Vehicles (CAVs) have the potential to make transport:

SAFER **GREENER** **MORE ACCESSIBLE**



But new technologies do not just happen:
they are imagined by people and developed with purpose.
EU values need to be built-in at their core to ensure

ETHICAL USE POSITIVE IMPACT ACCEPTANCE TRUST

To tackle ethical challenges raised by CAVs, the European Commission formed an **INDEPENDENT EXPERT GROUP** to explore some important questions:

- ? How safe should CAVs be?
Are pedestrians and cyclists more at risk with CAVs in traffic?
- ? Do you need to understand the technology behind it?
What kind of data will a CAV share?
- ? Can the decisions of a CAV be trusted?
Who is responsible for its behaviour?

20 RECOMMENDATIONS
are now available to support researchers, policymakers, manufacturers and deployers in the safe and responsible transition towards CAVs, with focus on:

ROAD SAFETY **DATA, ARTIFICIAL INTELLIGENCE AND ALGORITHMS** **RESPONSIBILITY**



EU zugewiesene Expertengruppe gibt 20 Empfehlungen:

1. Verkehrssicherheit, Risiko, Dilemmas;
2. Daten- und Algorithmusethik;
3. Verantwortung / Rechenschaftspflicht.



Source: <https://www.tudelft.nl/en/technology-transfer/development-innovation/research-exhibition-projects/meaningful-human-control/>

1
2

Platooning evolution



Cross-border platooning



Multibrand PLATOONING





CONNECTED TRANSPORT CORRIDORS

- 12.000 km driven in convoys
- Priority convoys improves throughput with 10-17% *
- Intersecting traffic is delayed with 1-3% *
- Fuel savings 6-14% (two truck convoy, 2100 km)
(175k km/year → 6k liters)
- Less stress for drivers

* SmartWayz analysis



> Super EcoCombi



Smart mobility.
Dutch reality.





Potentiale Gewinnen Super Eco Combi

ZWEDEN: TRANSPORT VAN 600 M3 VOLUME GOEDEREN MET DEZELFDE DICHTHEID (150 KG/M3)



Voertuigen (en chauffeurs)

	6	4	3
Voertuiglengte	16,5 m	25,5 m	32 m
Lading per voertuig	100 m ³	150 m ³	200 m ³
Brandstofverbruik	3,5 ml/m ³ km	3 ml/m ³ km	2,5 ml/m ³ km
CO ₂ -uitstoot	100%	85% = - 15%	73% = - 27%
Weggebruik	499 m	368 m	296 m

Bron: Cider L, Larsson L, HCT DIO2-project Gothenburg-Malmö in Sweden, 2019



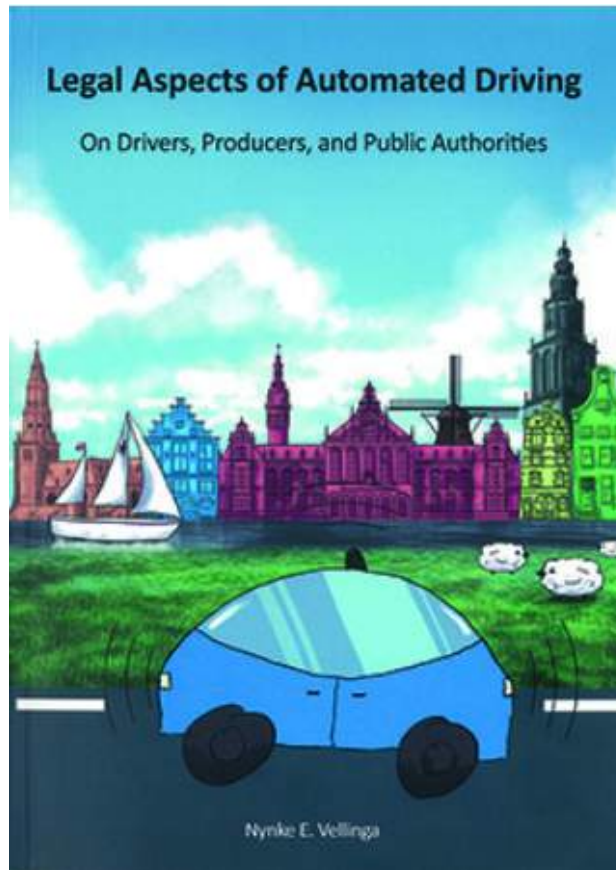
Exemplary for a standard semi trailer vs. a double semi trailer.

	€/m ³ km	€/tkm	Cost/tour	CO ₂ e TTW	Co ₂ e WTW
Average savings potential (%)	-32,4	-32,4	-31,7	-18,4	-23,0

Bron: HIGH CAPACITY ROAD TRANSPORT FOCUSING INNOVATION ON SMARTER MOBILITY SOLUTIONS FOR SMARTER POLICIES Brussels, 7 MAY 2019



Fortschritte im Rechtsbereich



N.E. Vellinga, Legal Aspects of Automated Driving. On Drivers, Producers, and Public Authorities Diss. RuG, 241 p., geen handelseditie beschikbaar, online beschikbaar via <https://doi.org/10.33612/diss.112916838a>

The screenshot shows the UNECE website with the following elements:

- URL: <https://www.unece.org/info/media/presscurrent-press-hy/transport/2020/un-regulation-on-automated-lane-keeping-systems-is-milestone-for-safe-introduction-of-automated-vehicles-in-traffic>
- Language options: Français, Español
- Logos: UNECE, SUSTAINABLE DEVELOPMENT GOALS
- Navigation: About UNECE, Our work, Themes, Where we work, Open UNECE, Events, Publications, Media
- COVID-19 Response banner: Find out about UNECE's Latest Developments
- Breadcrumbs: UNECE > INFO > MEDIA > PRESS RELEASES > TRANSPORT > 2020 > UN REGULATION ON AUTOMATED LANE KEEPING SYSTEMS IS MILESTONE FOR SAFE INTRODUCTION OF AUTOMATED VEHICLES IN TRAFFIC
- Left sidebar menu: Executive Secretary Blog, Press Releases, News, COVID-19 News & Press Releases, Speeches, Stories, UNECE Weekly, Videos
- Press Releases section: Filter by PROGRAMME (All), TOPIC (All), YEAR (2020), LANGUAGE (English). Includes a 'Go' button and contact info: unece_info@un.org
- Press Release Title: **UN Regulation on Automated Lane Keeping Systems is milestone for safe introduction of automated vehicles in traffic**
- Published: 25 June 2020
- Text: "Some 60 countries have reached a milestone in mobility with the adoption of a United Nations Regulation that will allow for the safe introduction of automated vehicles in certain traffic environments. The UN Regulation establishes strict requirements for Automated Lane Keeping Systems (ALKS) for passenger cars which, once activated, are in primary control of the vehicle. However, the driver can override such systems and can be requested by the system to intervene, at any moment."
- Image: Interior view of a car dashboard showing the steering wheel and infotainment screen.



The regulatory landscape: Crossings borders?



← Information in English

Connected automated vehicle

Practical testing of Connected automated vehicle in the Netherlands

Admittance procedure Connected automated vehicle

Method admittance procedure Connected automated vehicle

• **Application practical experience Connected automated vehicle**

About the RDW

Overview method admittance procedure

Webform for connected automated vehicle questions

Application practical experience Connected automated vehicle

The admittance procedure Connected automated vehicle is used to apply for practical tests on public roads, using new technologies and functionalities in vehicles.

A definite request to the RDW can be made using [the form 'Application Connected automated vehicle'](#). Before submitting an application please check all [significant information around the admittance procedure Connected automated vehicle](#).

Turn-around time application

From the time you submit an application it can take between 3 and 6 months before you can actually carry out a test.

Costs of application

The applicant pays:

- › the costs of evaluation of the application and the information you supply,
- › test operations, and
- › where relevant, the hire of the [RDW test centre in Lelystad](#).

Sustainable mobility

The European Green Deal

December 2019
#EUGreenDeal

Europe must reduce emissions from transport further and faster.

Transport accounts for a quarter of the Union's greenhouse gas emissions and these continue to grow. The Green Deal seeks a **90%** reduction in these emissions by **2050**.

**Share of Greenhouse Gas Emissions
by Mode of Transport (2017)**

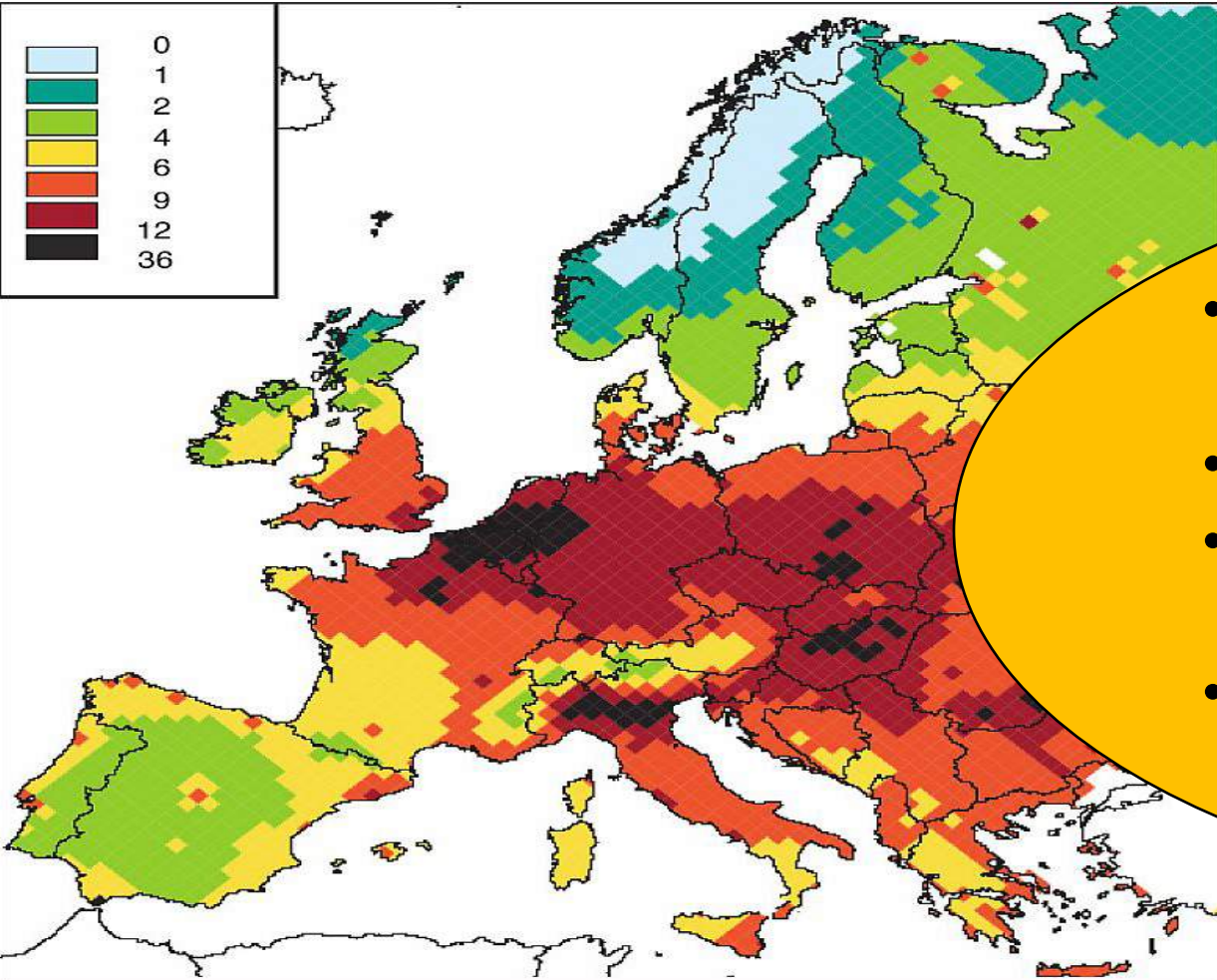


90%
reduction
greenhouse gas
emissions in
transport by 2050

Auto als Lenker? Air Quality and its effect on human health



Royal Netherlands
Meteorological Institute
Ministry of Infrastructure and the
Environment



- Europe is one of the most affected regions

- 4.2 million death a year due to PM2.5 outdoor pollution (WHO 2017)
- 4000 death a year in The Netherlands
- Children are more vulnerable to air pollution
- NO2 is more toxic than previously thought

Loss in statistical life expectancy in months

EU Programme CAFE, (CAFE Scenario Analysis Report Nr. 2., Amann et al., 2004)



Schlussfolgerungen: „Auto als Lenker“



- Langsamer als erwartet;
- Gute Fortschritte gemacht;
- Prioritäten haben gewechselt:
 - Schneller unterwegs, gleichviel Reisezeit!
 - Hälfte der Stadt für Automobilität?
 - Folgen Corona?
 - Smart Restart?!

* Das Gesetz zur Erhaltung von Reisezeit und Fahrten oder das Brever-Gesetz ist ein verkehrstechnische Prinzip. Das Gesetz wurde 1977 von Geurt Hupkes beschrieben und durch Daten gestützt. Das Gesetz impliziert, dass eine Person immer eine nahezu konstante Zeit auf Reisen verbringt



Danke für Ihre Aufmerksamkeit!

