

NL

Netherlands

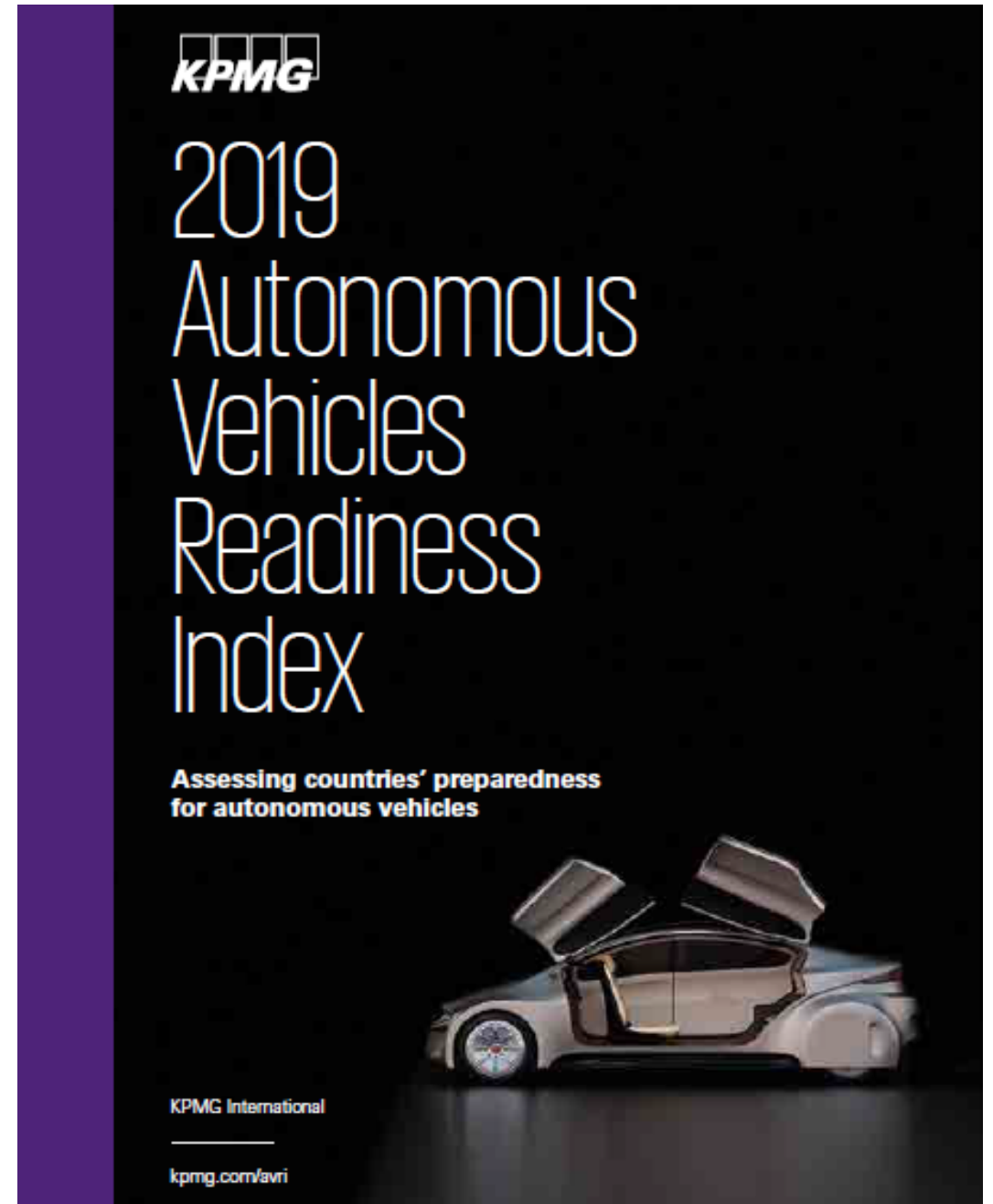
Connected & Automated Driving



“The nr 1 country most prepared for the future of autonomous transportation”

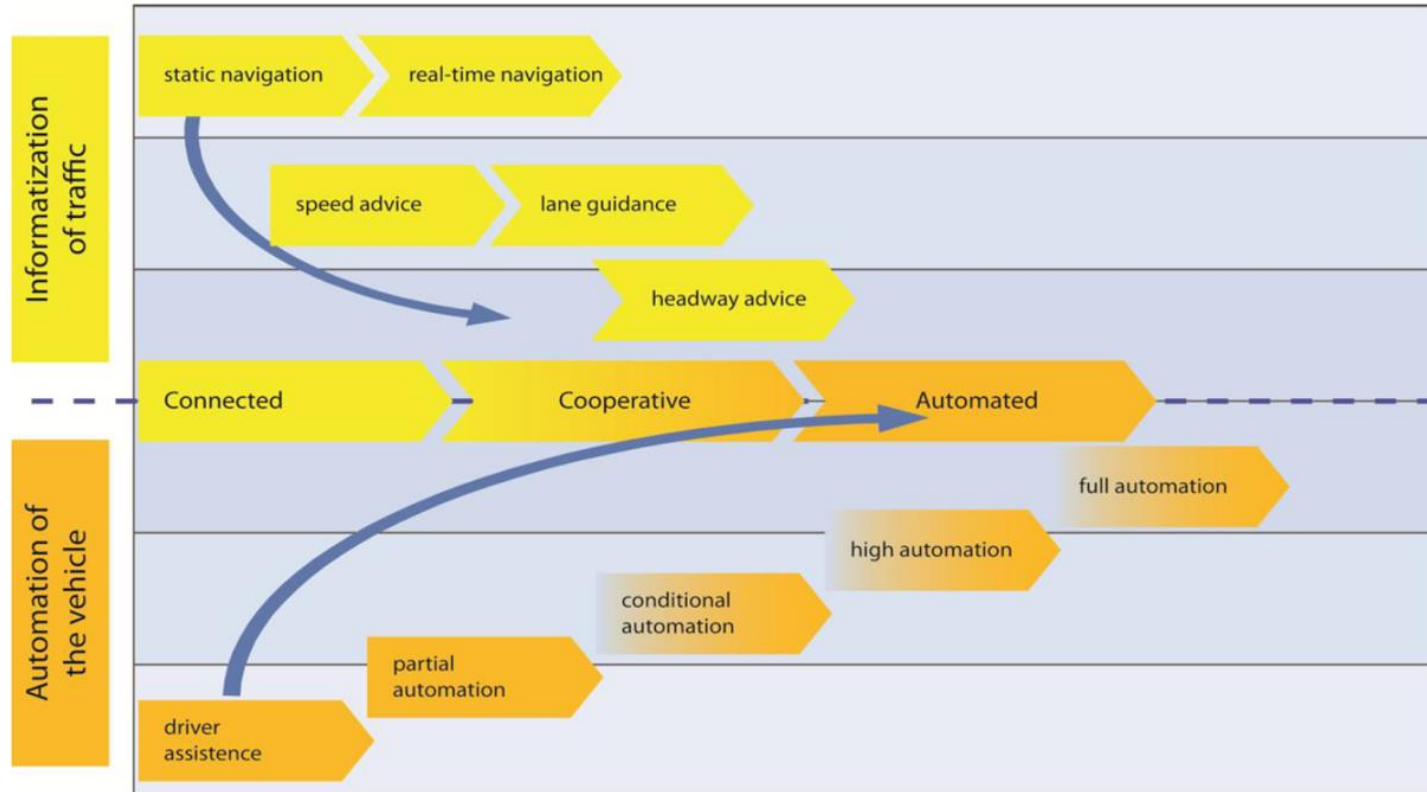
(KPMG, 2018 & 2019)

- Supportive government (policy/legislation)
- High quality infrastructure (both physical and digital)
- Innovative ecosystem (with positions in core technologies)
- Several projects (with consumer acceptance)



Vision

Automated & Connected Driving (in synergy)



“Why should you try to recognize a red traffic light, if the traffic light gives you the signal”
[Carlo vd Weijer, TUE]

Connected, cooperative and automated driving developments should come together to harvest societal benefits.

Policy



A supportive government

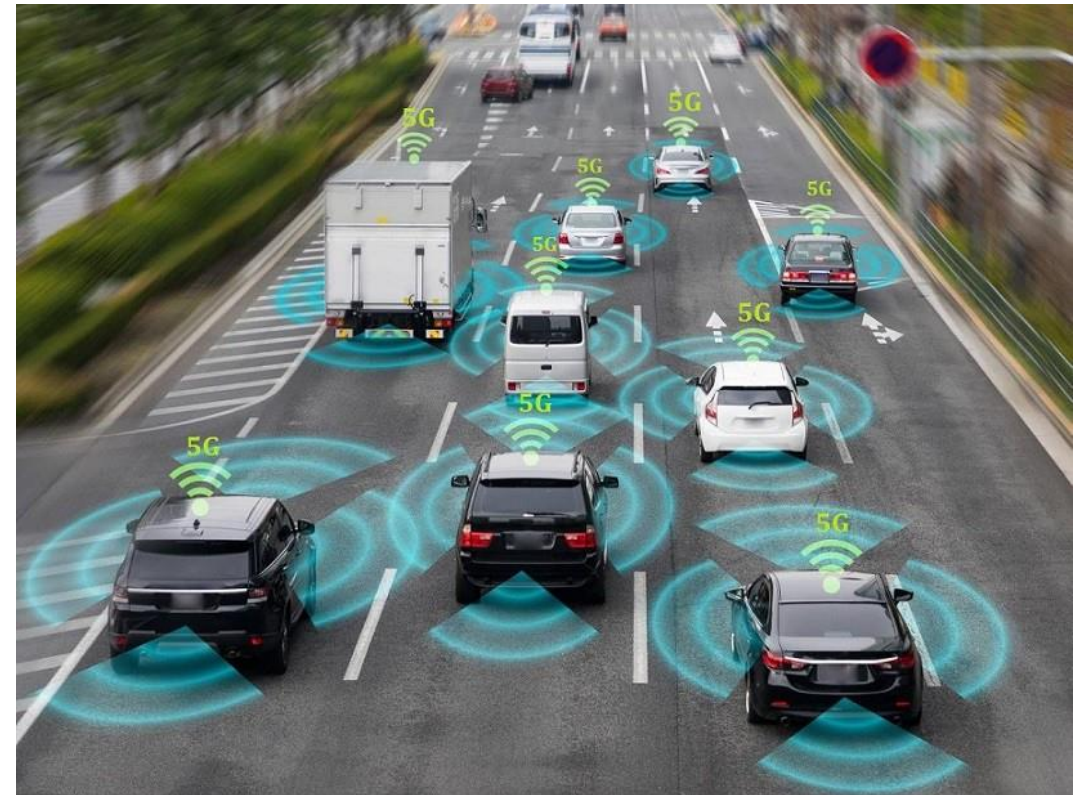
- A leading role as policy maker in Europe (example: [Declaration of Amsterdam](#))
- A road authority with a strong international reputation: on traffic management (RWS), on vehicle testing (RDW) working with international clients (like Tesla)
- Initiated several projects and challenges: including the European Truck Platooning
- Open source data & IT/data protocols: on traffic (historic and real time), on e-mobility (interoperability)
- 'Driver license' for the self-driving car (with support of company robottuner)
- "Experimental Law on Self driving vehicles"
- ...
-

High quality infrastructure

Both physical and digital

- Best [logistical infrastructure](#) in Europe (world-class airport, top-ranked seaports and high-speed road and rail are second to none)
- Best (EV) [charging infrastructure](#) in Europe (with open protocols and bilateral charging)
- Best [digital infrastructure](#) in Europe (4G coverage everywhere, inventors of WiFi/Bluetooth, lowest average latency in Europe, high expertise in cybersecurity)

Working on both Wi-Fi-P and 5G solutions



Ecosystem

A strong base of world class T1/T2 suppliers and knowledge providers

Supplying high tech solutions for both the vehicle and the infrastructure (OEM independent)



Global nr1 automotive chip supplier. And the first with a V2X solution in a mainstream car (VW Golf)



International navigation and location technology company. Working on HD maps



Helping cities like Copenhagen to make its infrastructure smart



Independent applied research institute, working with both industry and cities on new mobility solutions



Its technology base of simulating automated driving is based in the Netherlands (former TASS, a TNO spinoff)

Ecosystem

Some examples autonomous vehicles (of Dutch origin)

On the road (people)



[2getthere/ZF](#)
driverless shuttles for
Technological University
(NTU) students in Singapore

[VDLAGV](#)

The autonomous vehicles are
used by BASF in Ludwigshafen
Germany, and cover routes of
more than 100 kilometres at a
maximum speed of 30km/h

On the road (goods)



In the air (in development)



[Dutch Drone Delta](#)

A recent autonomous
drones initiative with
several user cases.
Example: to deliver spare
part packages to ships

In the water (in development)



[Roboat](#)

A research project of
AMS institute
Amsterdam, TU Delft and
MIT Boston in the
channels of Amsterdam

From the start,
a country acting as
one large testbed;
setting the base for
deployment &
scaling up



Showcase: Talking Traffic

- Continuous sharing of data between road users and infrastructure:
- Based on cellular technology
- No special equipment required
- Large number of users
- Swarm intelligence: “traffic regulates traffic”
- Deployment, not just pilots
- Scalable

C-ITS connecting road users & road side through 4G/LTE



Results



- Savings of 500 - 1.300€ per truck per year
- Fewer driven kilometres (20 million) and reduction of 120 tons CO2



- 15% improved traffic flow
- Less road maintenance



- 6-14% fuel savings due to truck priority
- Optimised performance per crossing due to better arrangements (up to 20-60% even without receiving CAM-messages)

Showcase: Data Task Force

Which Data?

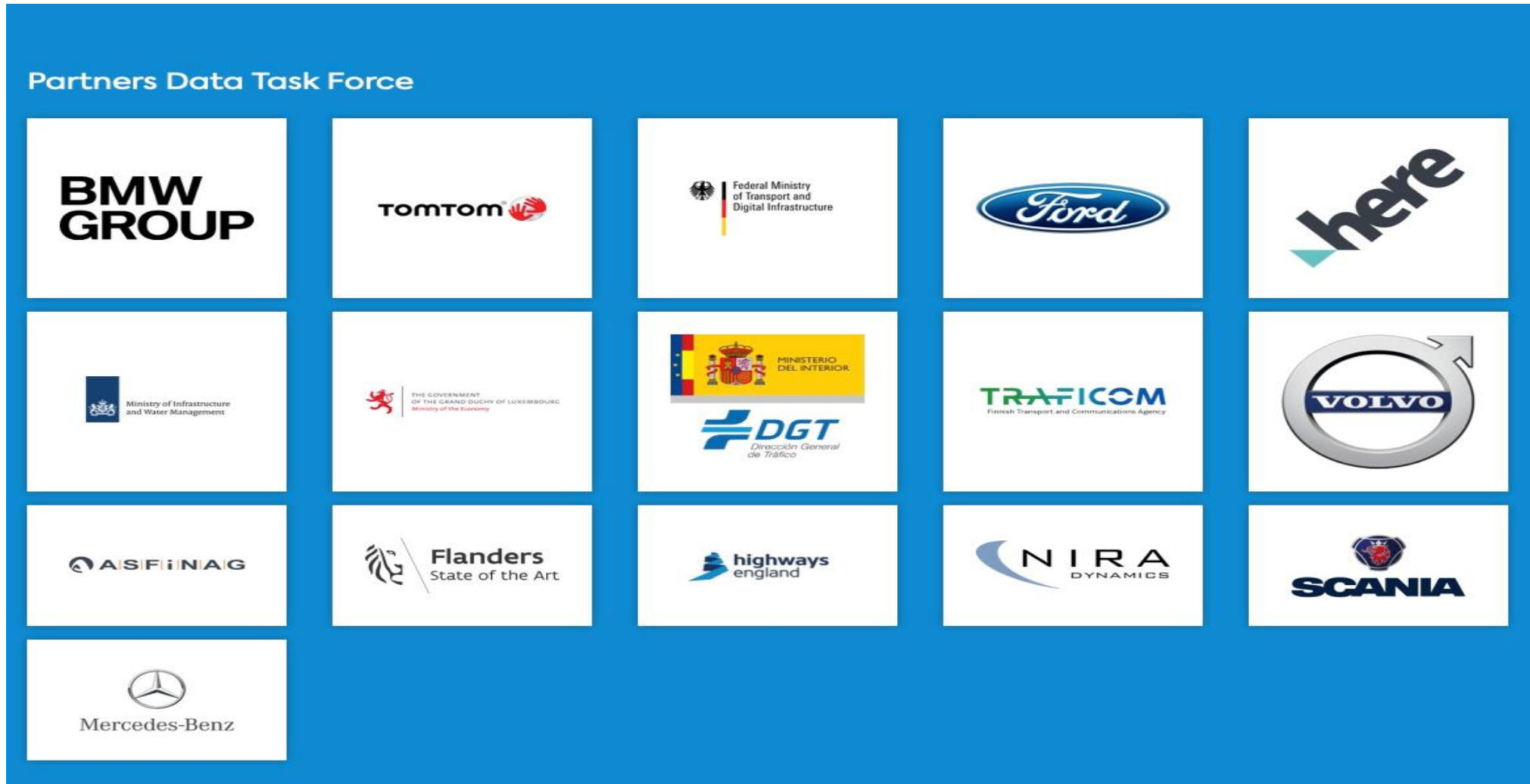
- Windscreen wipers
- Foglights
- Loss of traction
- Airbag deployment
- Hazard lights
- Etc.
- All road types, all vehicle types
- PoC: 1 to 2 years
- After PoC: data for road safety ecosystem



Minimal data set

- Event / incident
- Time
- Location
- Event-ID
- Heading (if relevant and available)

Showcase: Data Task Force – the Partners



Showcase: Autopilot (EU)

- [H2020 EU Project](#) (01/01/2017 – 31/12/2019)
- Project costs: 25 m€ - EU contribution: 20 m€
- AUTOMated driving Progressed by the Internet Of Things (Autopilot)
- Through: large Scale IoT Pilots in 6 countries about Connected and Automated Driving
- Several user cases, including: urban driving, platooning, and automated valet parking

Internet of Thing

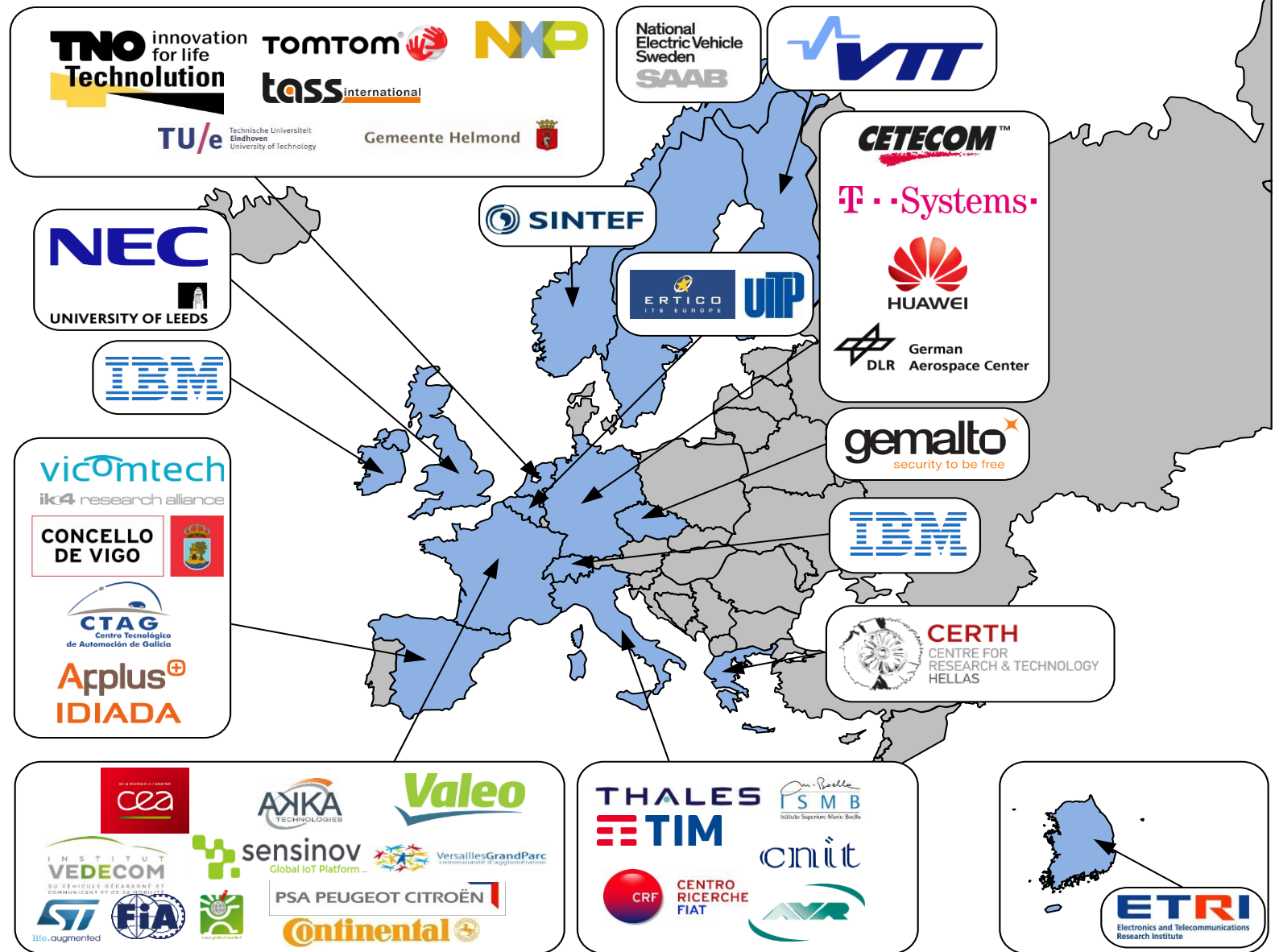
Autonomous Driving



Mobility as a Service

Showcase: Autopilot (EU) – the partners

- 44 partners under coordination of ERTICO
- Including Valeo, PSA, and Vedecom in France
- TNO coordinated Pilot in the Netherlands (involving 15 partners)



JOIN US building the future of mobility

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