Self-piloted cars: the future of road transport?

Research study

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Structure of the Presentation

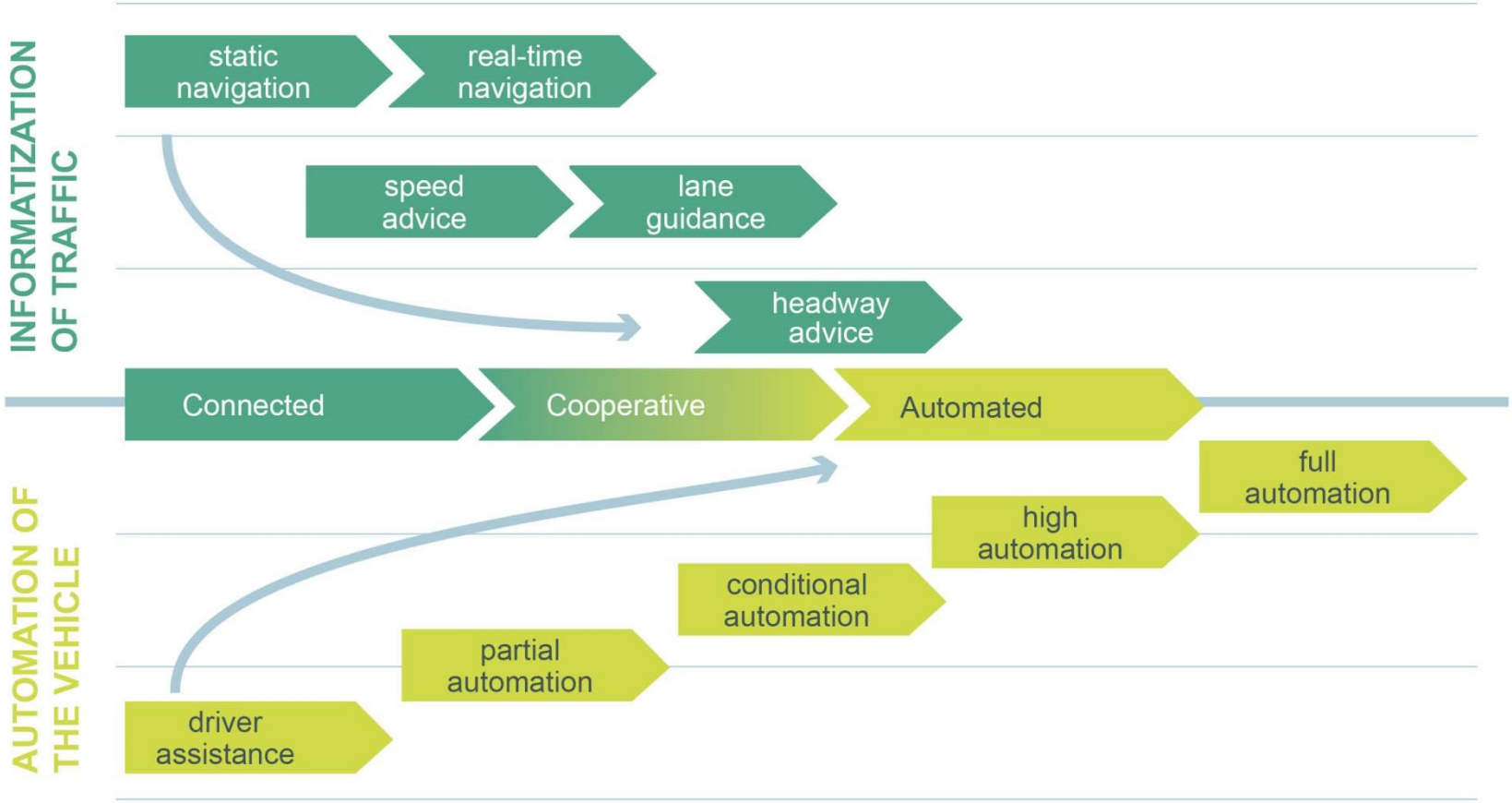
1. Scope of the study
2. Automated vehicles classifications
3. Stakeholders and projects
4. Future pathways
5. Potential impacts
6. Recommendations

1. Scope of the study

Focus on vehicle automation:

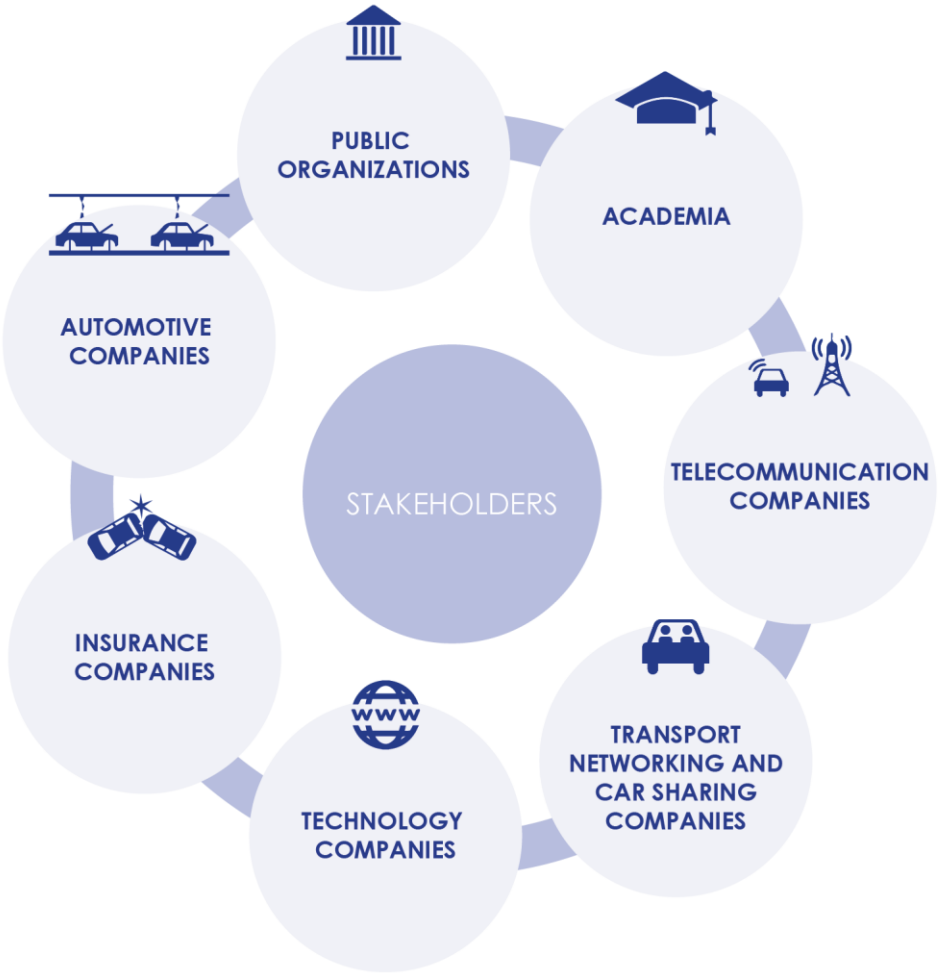
- Overview of technology and latest developments
- Assessment of future pathways/timescales for penetration of fully automated system on the market
- Assessment of potential impacts of automated (*and connected*) vehicles
- Recommendations on actions to be taken to support the achievement of potential benefits of vehicle automation

2. Automated vehicles classifications



Source: Steer Davies Gleave elaboration on Declaration of Amsterdam 2016

3. Stakeholders involved and projects



PRIVATE VEHICLES
Evolutionary/ revolutionary approaches

FREIGHT VEHICLES
Platooning

URBAN
Last mile/ public transport

4. Future pathways: cars

Passenger vehicles:

- **Evolutionary approach:** implementation of increasingly automated systems (level 2 to 4) in the short (next 5-10 years) and middle term (10-20 years).

- **Full automation** expected to be feasible on a large scale in a **farther time horizon** (more than 20 years) though use restricted to specific circumstances could occur earlier.

4. Future pathways: freight & PT

Freight:

- **Platooning**: incremental pathway in short/medium term consisting of the progressive reduction of the responsibilities of the driver/s sitting in the following vehicle/s. Full automation expected in the longer term.

Urban/public passenger transport:

- Development of highly automated vehicles whose application is initially limited to **specific environments** (e.g. airports, campuses, exhibition centres, dedicated routes etc.) and then gradually opens up.

5. Potential impacts: road safety

Road safety:

- Potentially major impacts as ITS/automated systems could reduce accidents due to human errors - responsible for about 90% of road accidents…
- …but effective safety performance of automated systems has yet to be demonstrated.
- In addition to this, the extent to which automated vehicles could contribute to improve safety on EU roads will depend on their rate of penetration of circulating fleet – which is likely to be a relatively long process.

5. Potential impacts: congestion and emissions

Road congestion and emissions:

- Reduced social cost of congestion – by reducing the opportunity cost of travel time and allowing vehicle users to dedicate time to other activities while travelling….
- …but contrasting effects expected on road traffic (and related environmental and GHG emissions). Gains deriving from increased capacity could be offset by increased demand for road transport.

5. Potential impacts: others

Other investigated impacts:

- Transport accessibility and affordability
- Adaptation of transport infrastructure
- Impacts on industry & services (automotive, transport, IT, insurance, etc.) & labour market
- Land use
- Ethics & public acceptance

6. Recommendations

Exploiting most benefits:

- **Further research** to assess safety and environmental implications. Creation of a **knowledge sharing system** to store outcomes of tests and pilots highly recommended.
- Attention to the **local/urban dimension**. Many benefits expected to reach highest potential at that level.
- Identify pathways for **motorways of the future**. How more advanced levels of automation would interact with EETS and other C-ITS applications on EU motorways?

6. Recommendations

Setting a common framework:

- **Single roadmap** for automated and connected vehicles.
- Further **international cooperation** on **testing** to make best use of growing expertise and know-how.
- **Step-by-step** approach for **place into market** starting from approval of lower levels of autmoation that are ready to be deployed in short term.
- Amendments to a number of **EU directives** needed to accompany the process.

Thank you

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