



Day 2

## Which policy and regulatory frameworks for CAD?

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## Challenges

- Driver/ Passenger
- Transition period – perverse effects
- Liability & Ethics
- Data protection & Security
- Safety & Transport policy





## Driver/ Passenger – Technology complexity

- Fail to use a system correctly
- Use a system at an inappropriate time



- Simple & intuitive systems
- Difference between brands should not be at the detriment
- Minimise distraction





## Driver/ Passenger – Driver training

- Currently European Driving License Directive & Directive on initial qualification and periodic training
- Automation requires new skills:
  - Driving on **different levels of automation**
  - Driving on **mixed vehicle types**
- Which regulatory framework?





## Transition period – perverse (safety) effects

Level	Name	Narrative definition	Execution of steering and acceleration/ deceleration	Monitoring of driving environment	Fallback performance of dynamic driving task	System capability (driving modes)
<b>Human driver monitors the driving environment</b>						
0	No Automation	the full-time performance by the <i>human driver</i> of all aspects of the <i>dynamic driving task</i> , even when enhanced by warning or intervention systems	Human driver	Human driver	Human driver	n/a
1	Driver Assistance	the <i>driving mode-specific</i> execution by a driver assistance system of either steering or acceleration/deceleration using information about the driving environment and with the expectation that the <i>human driver</i> perform all remaining aspects of the <i>dynamic driving task</i> .	Human driver and system	Human driver	Human driver	Some driving modes
2	Partial Automation	the <i>driving mode-specific</i> execution by one or more driver assistance systems of both steering and acceleration/deceleration using information about the driving environment and with the expectation that the <i>human driver</i> perform all remaining aspects of the <i>dynamic driving task</i> .	System	Human driver	Human driver	Some driving modes
<b>Automated driving system ("system") monitors the driving environment</b>						
3	Conditional Automation	the <i>driving mode-specific</i> performance by an <i>automated driving system</i> of all aspects of the <i>dynamic driving task</i> with the expectation that the <i>human driver</i> will respond appropriately to a <i>request to intervene</i>	System	System	Human driver	Some driving modes
4	High Automation	the <i>driving mode-specific</i> performance by an <i>automated driving system</i> of all aspects of the <i>dynamic driving task</i> , even if a <i>human driver</i> does not respond appropriately to a <i>request to intervene</i>	System	System	System	Some driving modes
5	Full Automation	the full-time performance by an <i>automated driving system</i> of all aspects of the <i>dynamic driving task</i> under all roadway and environmental conditions that can be managed by a <i>human driver</i>	System	System	System	All driving modes



- Risks of distraction
- Links to the infrastructure
- Autonomous develops into 'autistic' and 'selfish'
- V2I / V2X communication





## Liability & Ethics



- Civil liability regulated by Motor insurance directive
  - Until which point the liability remain with the driver?
  - Is EDR necessary?
- Humans make ethical choices based on their values
  - How do systems decide?
  - Should individuals be able to change decisions / choose amongst algorithms?



## Data protection & Security

Protection of  
personal data  
Regulation

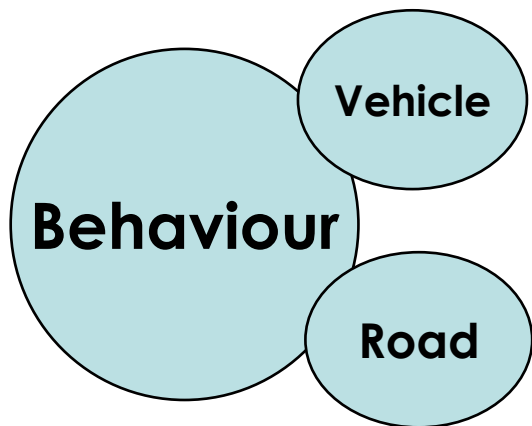
Directive on  
Processing of personal  
data by competent  
authorities

- **Which data** is being shared? With whom?
- **EDR:**
  - who can access the data?
  - Under what **conditions**?
  - How is the data used?
  - For which purposes?

## Cybersecurity

- No regulatory framework





## Safety & Transport policy

### Safety Standards

- The Safe System depends more and more on vehicle technology and quality of infrastructure (forgiving design)
- General Safety Regulation & mandatory e-call from 2018



What is safe enough?



Are new standards necessary?

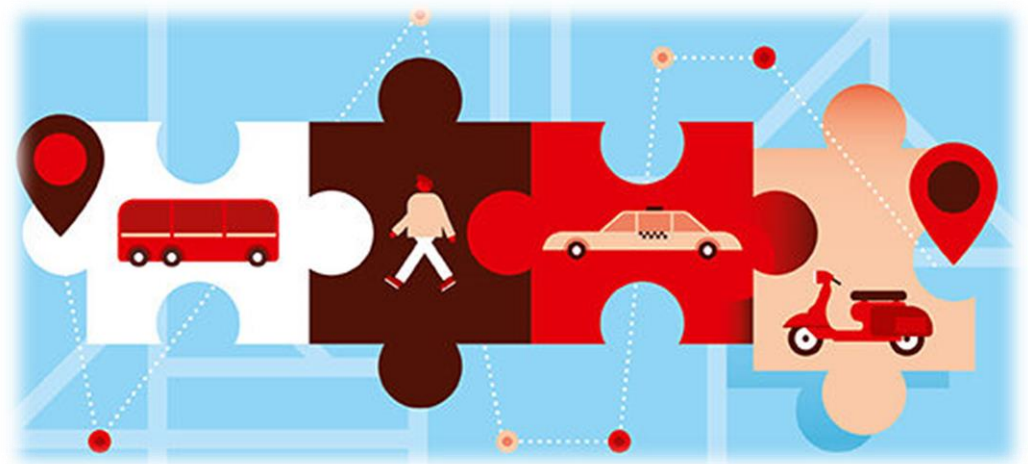




## Safety & Transport policy

### Transport policy

- Changes to transport and mobility
  - Policy frameworks should embrace the impact and opportunities into **integrated policies**
- Main private & public transport
- Shared transport
- On-demand services





## Thank you for the attention!

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