



# iMobility Forum WG Automation in Road Transport

## Sub-WG on Legal and Regulatory issues

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# Outline

- Short on VRA
- Regulatory progress in Europe
  - Germany,
  - UK,
  - France,
  - Spain,
  - Sweden,
  - Finland,
  - Netherlands
- Space for collaboration

# VRA in Short

VRA – Vehicle and Road Automation is a support action funded by the European Union to create a collaboration network of experts and stakeholders working on deployment of automated vehicles and its related infrastructure



# Objectives of VRA Support Action

Create an active European network of experts on Vehicle and Road Automation and foster cooperation within the Automation WG



Contribute to EU-US-JPN trilateral WG on road vehicle automation (EC – US DoT – MLIT)



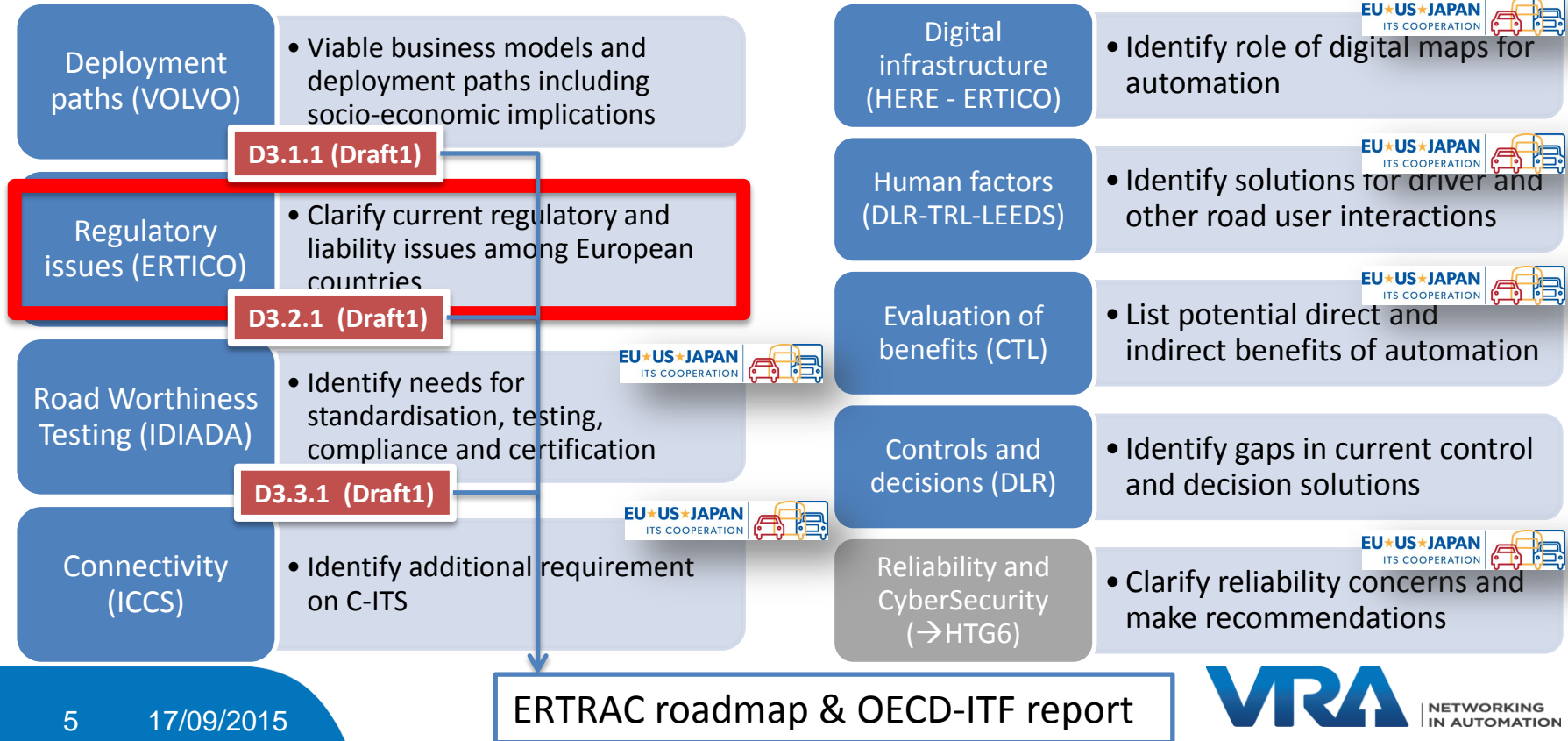
Identify deployment needs for Vehicle and Road Automation

*Deployment paths, Regulatory issues, Testing, Connectivity, Benefits, Maps, Cybersecurity, Human Factors, Decision and Control*

[VRA-net.eu/wiki](http://VRA-net.eu/wiki)

Promote the Research on Vehicle and Road Automation

# VRA: Deployment needs discussed in Sub-WGs of the iMF Automation WG



# iMF Automation Recommendations 2014

- Regulatory framework to allow of highly automated driving vehicles testing at European Scale within a very near time horizon
- Regulatory framework to allow the commercialisation of highly automated driving vehicles at European scale in a longer term
- Clarify the roles and responsibilities of all relevant parties including road operators, and infrastructure providers



# Regulatory progress in Europe

Review of Member states initiatives



# Germany - Automated Driving

## Initiatives of the German Federal Ministry of Transport and Digital Infrastructure:

- Round Table „Automated Driving“ activities in three areas:
  - Research → [report published spring 2015](#)
  - Legal framework
  - Technical framework/Infrastructure
- Digital Motorway Test Bed A9
  - [Official opening on 4 Sept 2015](#)
  - Focus on tests of automated and connected driving under real conditions using V2V and V2I



# Germany – Round Table “Automated Driving”

## Goals and activities:

- National platform consisting of all relevant stakeholder groups (federal ministries, public authorities, automotive and supplier industry, user associations, insurances, research organisations etc.)
- Goal: Harmonized position on core issues concerning „Automated Driving“ with focus on the transition from partial to high automation
- Plenary and three Working Groups „Legal Issues“, „Driver/Vehicle“, „Research“ with subgroups

## Main achievements:

- Agreement on levels of automation
- Working Groups with specific tasks, last plenary session in June 2015
- Roadmap on the development of the general framework for highly automated driving in 2020 to be provided by the end of this year.
- Announcement planned at Frankfurt Motorshow on 16-17 September 2015

# Germany:

## "Strategy for automated and networked driving"

- Germany wants to “*establish a legal framework in which an automated and networked vehicle can autonomously take over driving tasks, without the driver having to constantly monitor the system.*”
- Ensure “Legal Certainty” including work on:
  - International Legal Framework: extension of the definition of driver, R79, ...
  - National Legal Framework: allow use of automated and networked vehicles, consider situations where the system performs the driving,...
  - Driver Training: handover and takeover of the driving task,...
  - Technical Approval and Inspection: adoption of Code of Practice, PTI,...
- [www.bmvi.de/strategie-automatisiertes-fahren](http://www.bmvi.de/strategie-automatisiertes-fahren) (16/09/2015)



# The Pathway to Driverless Cars

- ▶ UK Government published a detailed review of regulations on 11 February 2015
  - ▶ <https://www.gov.uk/government/publications/driverless-cars-in-the-uk-a-regulatory-review>
- ▶ Three main deliverables
  - ▶ **A Code of Practice** - spring 2015.
  - ▶ **Review and amend domestic regulations** - summer 2017.
  - ▶ **Liaise at an international level** to amend international regulations - 2018.
- ▶ Key conclusion

**Driverless vehicles can legally be tested  
on public roads in the UK today**





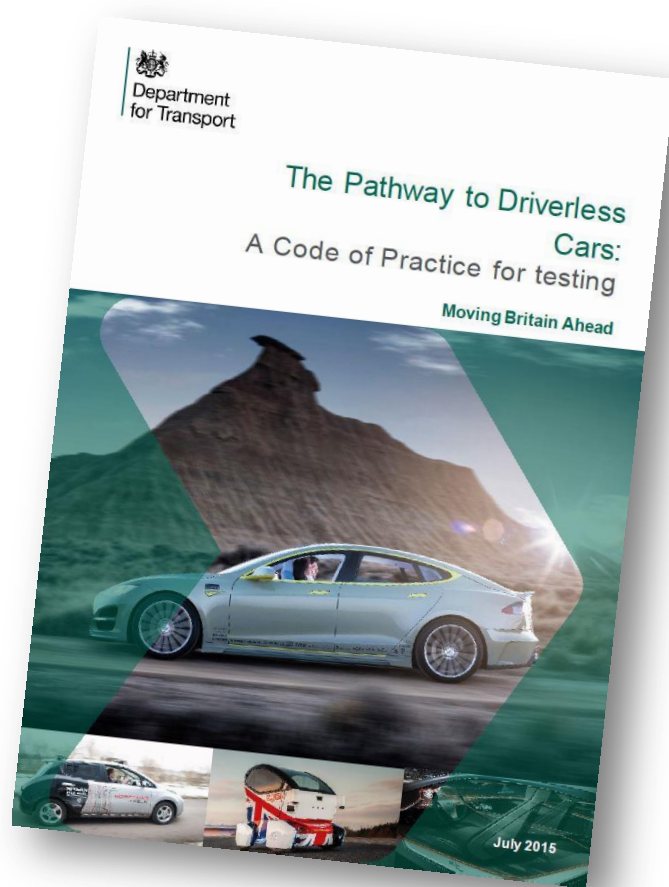
## The latest news

- ▶ DfT published the **Code of Practice** for testing on **20 July**
- ▶ The Government also
  - ▶ Established the **Centre for Connected and Autonomous Vehicles** to coordinate UK activity
  - ▶ Launched a **new R&D competition** worth £20million (to be match funded by industry) building on the current trials



# The Code of Practice\*

- ▶ Developed in consultation with key stakeholders – involving manufacturers, suppliers, insurers, local government.
- ▶ Sets out recommendations for;
  - ▶ those organising trials and testing,
  - ▶ those involved in the trials,
  - ▶ drivers,
  - ▶ vehicles.

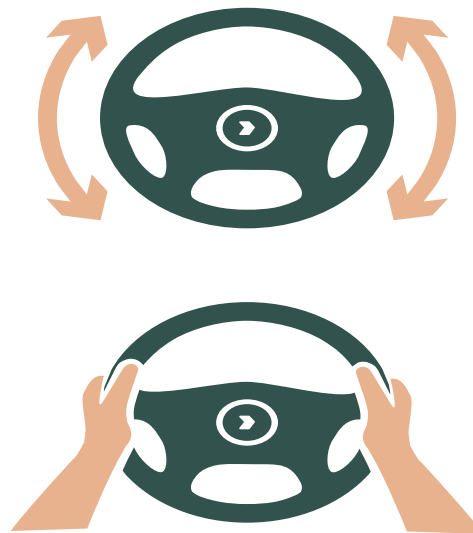


\*Not to be confused with RESPONSE Code of Practice



## What this means for drivers

- ▶ There must be a responsible qualified driver (or operator) present.
- ▶ The driver must be:
  - ▶ alert and able to take control if needed.
  - ▶ and hold an appropriate licence for the vehicle category.
- ▶ The driver or operator should receive appropriate training on the vehicle, systems and functionality.





## What this means for the vehicle

- ▶ The test vehicle must be **roadworthy**
- ▶ Vehicles should be fitted with a '**data recorder**' to record manual or automated mode.
- ▶ Vehicles should be **protected from unauthorised access** ('hacking')
- ▶ The specific vehicle **technology should have been proven on closed roads or test tracks** before any on-road testing commences





## The UK's approach to trials

- ▶ Is there any **prior agreement** required for road trials?
  - ▶ **No**
- ▶ Is there a **certification process** for the Code of Practice?
  - ▶ **No**
- ▶ Is there a **financial bond obligation**?
  - ▶ **No**
- ▶ Is there a **requirement for a permit**?
  - ▶ **No**
- ▶ **So what's Government's role?**
  - ▶ **To create the correct framework for industry to do the testing they need.**



# French Program – Use Cases to experiment



## Before 2020

## 2020 - 2030

## > 2030



Traffic Jam

Highway

Peri-urban

Valet Parking

Every situation



Shared fleet

Shuttles  
platooning

Intelligent parking  
and maintenance

Shared fleet

Shared taxis



On demand  
transport

Industrial  
sites

Platooning

Delivery in all  
situations

Platooning on  
highway



On private or industrial road  
On open road



# France:

## Where are we now (with regards to AD experiments) ?

- ❑ Article 9 of a new law of energetic transition has recently passed. It states that the Government can pass new laws (actually 'ordinances') to allow AD experiments under 'certain conditions'

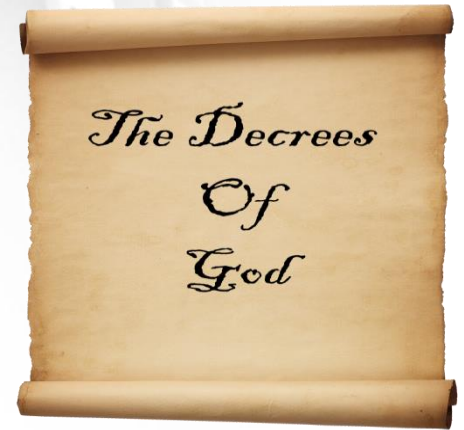
# Where are we now (with regards to AD experiments) ?

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□ Meanwhile a procedure is in place. Whoever would like to conduct an experiment (actually get a special registration for the experimental vehicle) on AD has to submit a request to the Administration

The request shall contain

- Answers to a request questionnaire
- A technical dossier about the vehicle
- A detailed presentation of the experiments including safety aspects



⊕ Previous status: Kingdom of Spain signed but did not ratify Vienna Convention

⊕ DGT – Dirección General de Tráfico

- *Directorate General of Traffic*
- Government department that is responsible for the Spanish transport network  
→ Depending of Ministerio del Interior (*Home Office*)

⊕ Legal instruction to allow testing automated driving vehicles in public roads

- Scope: SAE levels 3, 4 & 5
- Direct request to DGT for a license exemption
- DGT will provide a license exemption for the duration and location of the tests if conditions fulfilled
- No current laws need to be modified



**To be signed and effective in October 2015**

## ⊕ General overview

- Any type of vehicle can request the exemption
- The vehicle will be allowed to drive in automated mode only in the areas in which the vehicle requested the exemption
- The vehicle will be allowed to freely use the public road while **not** in automated mode (respecting the current legislation)
- Privacy will be respected – DGT may request cooperation with authorities in case of an event
- The vehicles shall have appropriate insurance coverage and drivers identified  
→ With appropriate training



## ⊕ Requirements

- Information about the tests, location and timing, driver experience
- Information about the vehicle technology and evidence of functional safety methodologies used
- The vehicle shall be able to pass a number of tests in a closed testing



**To be signed and effective in October 2015**

# Sweden: regulatory progress

Two main activities:

- DRIVE ME: field test of 100 Volvo cars on ring roads of Gothenburg (50km) in 2017.
- DRIVE SWEDEN: Strategic Innovation Programme:
  - A triple-helix way of working
  - Strong systems' perspective
  - Entrepreneurial spirit & strong industry
  - Consolidates several already on-going efforts

# Step by step principles for appropriate legal framework, basis for discussion

Swedish step by step basis for discussion

Principles for automated vehicles during introduction and in traffic where automated and not-automated cars mix

*The car has a driver that initiates the automated function and must be able to regain control over the vehicle. The driver should be fit to drive.*

*The car should be designed to operate within the rules and regulations in the road transport system.*

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# Step by step principles for appropriate legal framework, basis for discussion

*The automated function of the car should be able to lower the speed of the vehicle to safe levels when uncertainty occurs.*

*There must be awareness and acceptance from insurance industry that automated function are used.*

*The infrastructure provider (national, regional or local) must acknowledge that automated function are being used at a specific place.*



# Latest Finnish developments in AV legal issues

September 17<sup>th</sup> 2015  
Ministry of Transport and Communications  
Finnish Transport Safety Agency Trafi





# Finland: legal developments

- Finland's current road traffic legislation already permits automated vehicle trials – **no amendments** will be required
- AV tests possible using **test plate certificates**
  - Test plate certificates granted to companies ([apply](#))
  - Test plate certificate is valid for one year from the date of issue
  - Several test plate certificates can be granted to one company
- **National road traffic legislation** being thoroughly updated
  - Future automated driving scenarios will also be taken into account in this process



# Netherlands test country for self-driving vehicles

## *Learning by doing is a key ingredient*



- Testing on public roads is allowed
- Well-maintained + intensively used infrastructure
- Nationwide 4G coverage + detailed maps
- Innovative traffic control center
- Innovative and logistics sector
- Experienced in learning by doing



# The Dutch EU presidency

## *Joint effort towards a shared approach*

**EU**  
**2016**



- Central theme for informal council with transport ministers
- Addressing strategic approach on automated and connected driving:
  - Shared strategic agenda
  - Testing on European corridors
- European Truck platoon Challenge

***April 2016 in Amsterdam***



# Space for consolidation of efforts?



# Space for Collaboration

- Need today: Reduce policy uncertainties and control risk
- The champions among EU MS may want to work on pre-competitive issues (beside UNECE work):
  - Raise awareness at highest level but also to wider public and to localities
  - Rationalise insurance to stabilise a liability framework taking into account the shift of risks between users, public bodies and industry
  - Propose type approval and roadworthiness testing incl. Mutual Recognition scheme
  - Clarify connectivity approach: how connected should an automated vehicle be
  - Clarify obligations of the road operators and traffic managers and need for accurate maps (incl governance and standards)

# Two complementary paths

- Something everywhere
  - Bound to operate cross border → Work on large market preconditions
  - Need cross-border consistency for physical, digital, and legal infrastructure
  - Internalise the cost of driving to justify the investment
- Everything somewhere
  - Not bound to operate cross-border → Work on local preconditions
  - Clarification of legal status of non-conventional vehicles and services
  - Flexible and tailored solutions
  - Local adaptation of physical and digital infrastructure
  - Specific exemption and incentives

# Thank you for your attention...

Any questions?

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