



Transmitted by the Chair

Department
for Transport

Informal document **GRVA-01-33**
1st GRVA, 25-28 September 2018
Agenda item 4

GRVA Priorities re: Automated Vehicles

Bernie Frost





Consultation

- ▶ The priorities for GRVA work items were sought from all WP.29 Heads of Delegation in July 2018.
- ▶ The proposals from the EU/Japan and from China, presented to WP.29 at their June session, were circulated at that time.
- ▶ Responses were received from the governments of:
 - ▶ Australia, Canada, China, France, Japan, the Netherlands, the Russian Federation, Switzerland and the United States of America.
- ▶ Responses were also received from:
 - ▶ OICA and the European Transport Safety Council



Responses

Adequacy of emissions / fuel consumption/noise
Adequacy of passive safety
Around view monitor
Automatic Emergency Braking
Autonomous vehicles operating in specific conditions
Axle load monitoring system
Blind spot monitoring at high speed
Blind spot monitoring at manoeuvring at low speed
Cyber security
Data Storage System for AD (DSSAD)
Define new category for shuttle, including autonomous shuttle
Digital Vehicle Identity
Door-open blind spot detection
Drawback alerting system
Driver availability recognition
Electronic System Compliance (Complex Electronics Development)
Event Data Recorders (EDR)
Information to the Driver (HMI)
Longitudinal control (ACC, preventive braking)
Machine learning algorithms and decision-making algorithms

Minimum Risk Manoeuvre
Night Vision
Periodic Technical Inspection
Platooning
Rear crossing alert
Recognition of alcohol vapours in driver's breath
Sensors accuracy, performance and durability
Simulation/Virtual/Automated Assessment
Software (Inc. Over-the-Air) updates
Strategy for autonomous refuelling
Track/Real World Driving Evaluation
Traffic signal and road sign (including wrong way) recognition
Transition demand (HMI)
Tyre pressure monitoring system
VA signaling to other users (eg pedestrian)
Vehicle automatic identification
Vehicle dangerous condition alerting system
Vehicle parking assistance system
Vehicle to vehicle and Vehicle to infrastructure communications
Vulnerable road user safety messages



Issues outside GRVA remit

Adequacy of emissions / fuel consumption/noise

Adequacy of passive safety

Around view monitor

Automatic Emergency Braking

Autonomous vehicles operating in specific conditions

Axle load monitoring system

Blind spot monitoring at high speed

Blind spot monitoring at manoeuvring at low speed

Cyber security

Data Storage System for AD (DSSAD)

Define new category for shuttle, including autonomous shuttle

Digital Vehicle Identity

Door-open blind spot detection

Drawback alerting system

Driver availability recognition

Electronic System Compliance (Complex Electronics Development)

Event Data Recorders (EDR)

Information to the Driver (HMI)

Longitudinal control (ACC, preventive braking)

Machine learning algorithms and decision-making algorithms

Minimum Risk Manoeuvre

Night Vision

Periodic Technical Inspection

Platooning

Rear crossing alert

Recognition of alcohol vapours in driver's breath

Sensors accuracy, performance and durability

Simulation/Virtual/Automated Assessment

Software (Inc. Over-the-Air) updates

Strategy for autonomous refuelling

Track/Real World Driving Evaluation

Traffic signal and road sign (including wrong way) recognition

Transition demand (HMI)

Tyre pressure monitoring system

VA signalling to other users (e.g. pedestrian)

Vehicle automatic identification

Vehicle dangerous condition alerting system

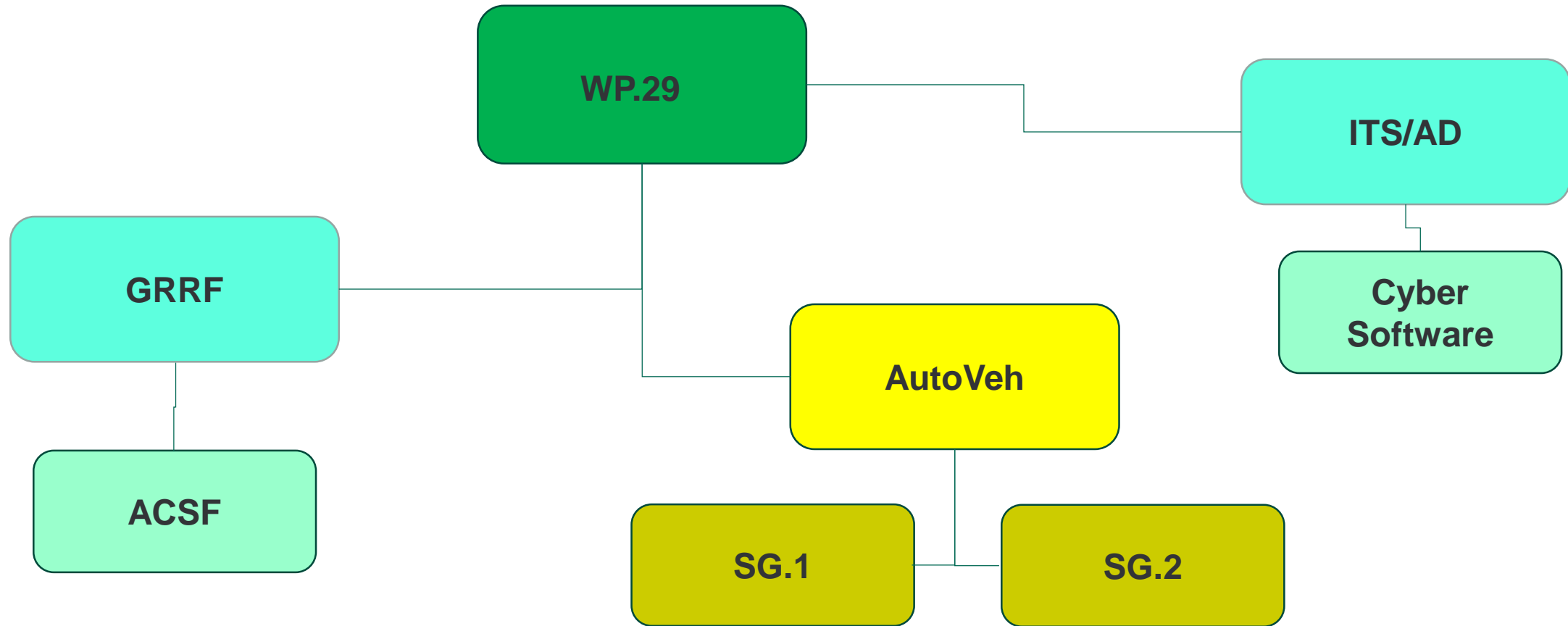
Vehicle parking assistance system

Vehicle to vehicle and Vehicle to infrastructure communications

Vulnerable road user safety messages



UNECE/WP.29 Automated Vehicle Landscape pre June 2018





Current Activities

ACSF

Driver availability recognition
Information to the Driver (HMI)
Longitudinal control (ACC, preventive braking)
Minimum Risk Manoeuvre
Traffic signal and road sign recognition
Transition demand (HMI)
Sensors accuracy, performance and durability
Around view monitor
Blind spot monitoring at high speed
Blind spot monitoring at manoeuvring at low speed

SG.1

Real
World Driving Evaluation

SG.2

Simulation/Virtual/
Automated Assessment/Track
Evaluation

**Cyber
Software**



Work Priority Groupings

Data Management

Data Storage System for AD (DSSAD)
Periodic Technical Inspection
Vehicle dangerous condition alerting system
V2V and V2I communications

Vulnerable road user safety messages

Vehicle automatic identification
Digital Vehicle Identity

Cyber security

Software (Inc. Over-the-Air) updates

Electronic System Compliance (Complex Electronics Development)

Machine learning algorithms and decision-making algorithms

GRVA Consideration

Define new category for shuttle (including autonomous shuttle), Autonomous vehicles operating in specific conditions, Platooning, Automatic Emergency Braking, Tyre pressure monitoring system

Sensors

Sensors accuracy, performance and durability

Night Vision

Rear crossing alert

Door-open blind spot detection

Around view monitor

Blind spot monitoring at high speed

Blind spot monitoring at manoeuvring at low speed

Drawback alerting system

Vehicle parking assistance system

VA signalling to other users (e.g. pedestrian)

Functional Requirements

Driver availability recognition

Information to the Driver (HMI)

Longitudinal control (ACC, preventive braking)

Minimum Risk Manoeuvre

Traffic signal and road sign (including wrong way) recognition

Transition demand (HMI)

Track/Real World Driving Evaluation

New Assessment Procedure

Simulation/Virtual/Automated Assessment



Data Management

EU/Japan

- ▶ Data Storage System for AD (DSSAD)
- ▶ Roadworthiness Verification / Periodic Technical Inspection
- ▶ Electronic System Compliance (Complex Electronics Development)

ITS/AD

- ▶ Cyber security
- ▶ Software (Inc. Over-the-Air) updates

Russian Federation

- ▶ Vehicle dangerous condition alerting system
- ▶ Vehicle to vehicle and Vehicle to infrastructure communications
- ▶ Vulnerable road user safety messages
- ▶ Vehicle automatic identification
- ▶ Machine learning algorithms and decision-making algorithms

Netherlands

- ▶ Digital Vehicle Identity



Sensors (Spatial Awareness)

China

- ▶ Sensors accuracy, performance and durability
- ▶ Night Vision
- ▶ Rear crossing alert
- ▶ Door-open blind spot detection
- ▶ Around view monitor

Russian Federation

- ▶ Blind spot monitoring at high speed
- ▶ Blind spot monitoring at manoeuvring at low speed
- ▶ Drawback alerting system
- ▶ Vehicle parking assistance system



Functional Requirements

EU/Japan

- ▶ Driver availability recognition
 - ▶ Information to the Driver (HMI)
 - ▶ Longitudinal control (ACC, preventive braking)
 - ▶ Minimum Risk Manoeuvre
 - ▶ Transition demand (HMI)
 - ▶ Track/Real World Driving Evaluation
-
- ▶ Russian Federation
 - ▶ Traffic signal and road sign (including wrong way) recognition



Additional Tasks for GRVA Consideration

France

- ▶ Define new category for shuttle (including autonomous shuttle)

Russian Federation

- ▶ Autonomous vehicles operating in specific conditions
- ▶ Platooning
- ▶ Automatic Emergency Braking
- ▶ Tyre pressure monitoring systems



Department
for Transport

New Assessment Procedure

AutoVeh

- ▶ Simulation/Virtual/Automated Assessment
- ▶ Track/Real World Driving Evaluation



Discussion

- ▶ Are these work priorities complete?
- ▶ What are the industrial priorities?
- ▶ Do they align with political priorities?
- ▶ How should GRVA be structured to deliver appropriate outcomes?
- ▶ What are the resource implications for this activity and what is the most resource efficient path to delivery?



Department
for Transport

Notes