Plenary Session One

Integrating vehicle, driver and infrastructure strategies

Al Bustan Rotana Hotel, Al Rashidya Ballroom A & B

Plenary Session One

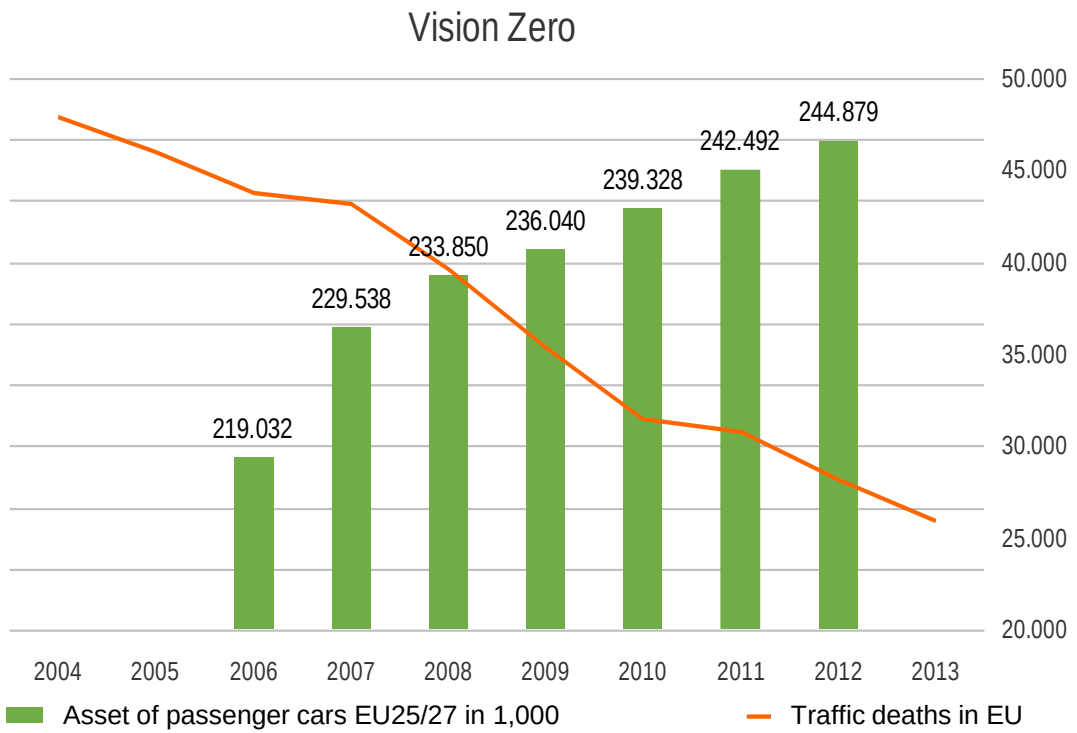
Presentation 1

Development of Automotive Technology and Social Conditions as a Challenge for PTI

Gerd Neumann

Managing Director, DEKRA Automobil GmbH, Germany

Vision Zero – Requirement and challenge



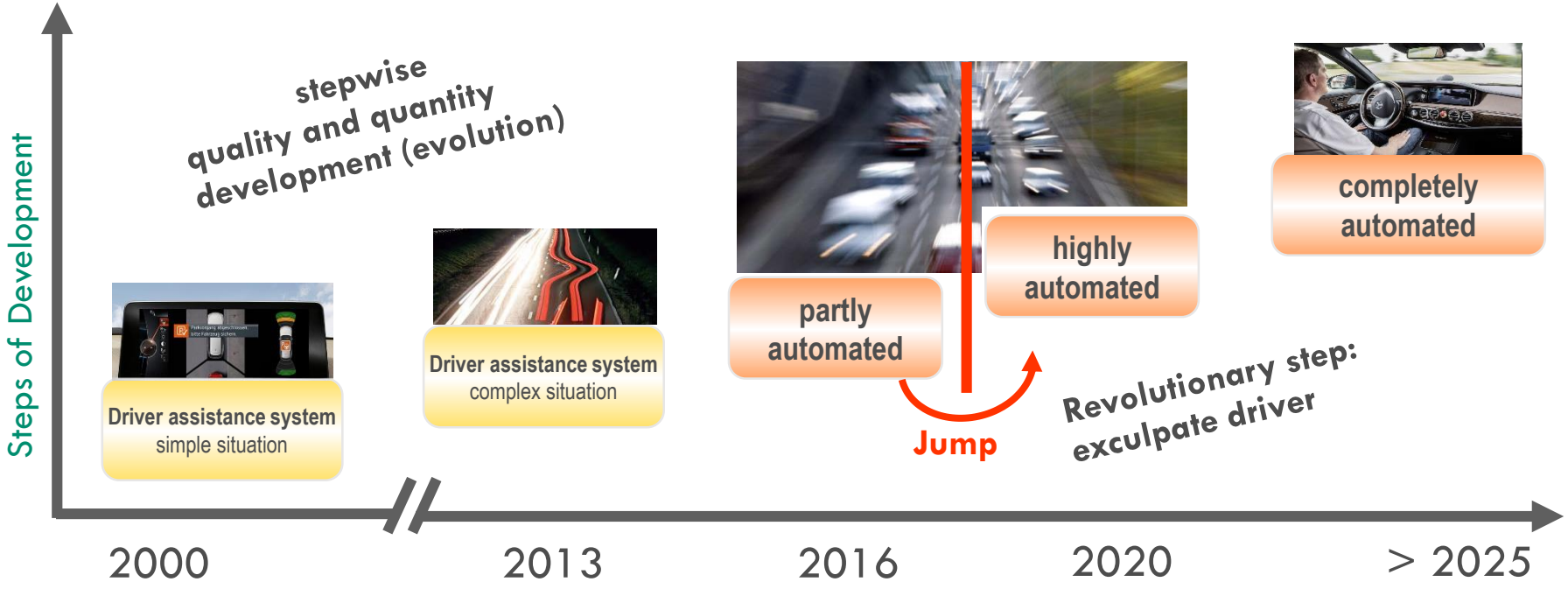
Factors of success:

- Development of automotive engineering
- Improvement of infrastructure
- Improvement of medical rescue services
- …..

PTI-Contribution:
Support high standard of vehicle safety during „lifetime“ !

Dr. Gerd Neumann - DEKRA Automobil GmbH

Challenge – Modern vehicle technology



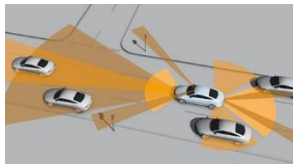
Further development issues: new propulsion system, online diagnosis, telemetry systems, networking of transport mode, Change of vehicles: entertainment systems on wheels, new mobility concepts, …

Challenge: Development of Vehicle Safety

Innovation for Vehicle Safety is going to be more quickly marketable through new electronic systems and IT solutions

Dr. Gerd Neumann - DEKRA Automobil GmbH

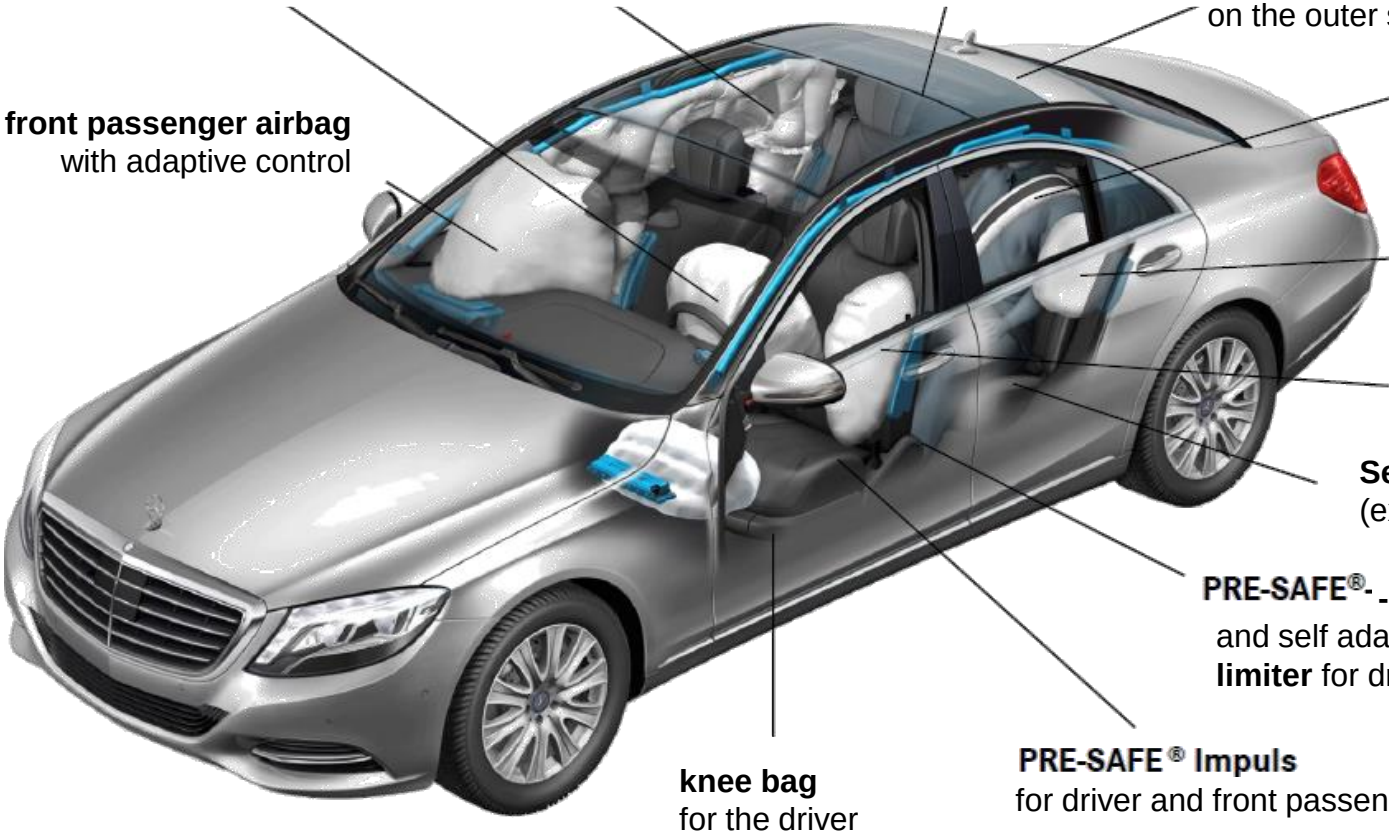
Example Active Safety

Strategy of Avoidance	Vehicle Action	DAS – Driver Assistance System
		
- Reduce energy	- Braking	- Emergency Brake Assist.
- Turnout	- Steering	- Lane Assist.
- Remain	- Not driving back or sideways	- Pedestrian recognition Lane Change Assist.
- Escape	- Acceleration	- Autonomous systems

Step by step reduction of accident potential and higher influence of technical safety on the general road safety

Dr. Gerd Neumann - DEKRA Automobil GmbH

Example: Pre-Safe® and Passive Safety



Source: Daimler AG

The variety of technical solutions requires new comprehensive PTI test procedures

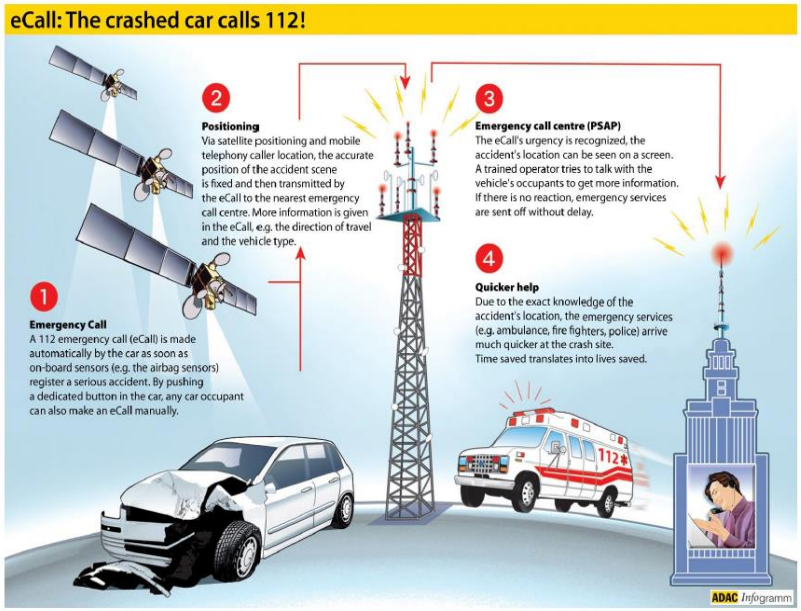
Challenge: Telematics

Challenge with highest priority !

- International regulations are under amendment

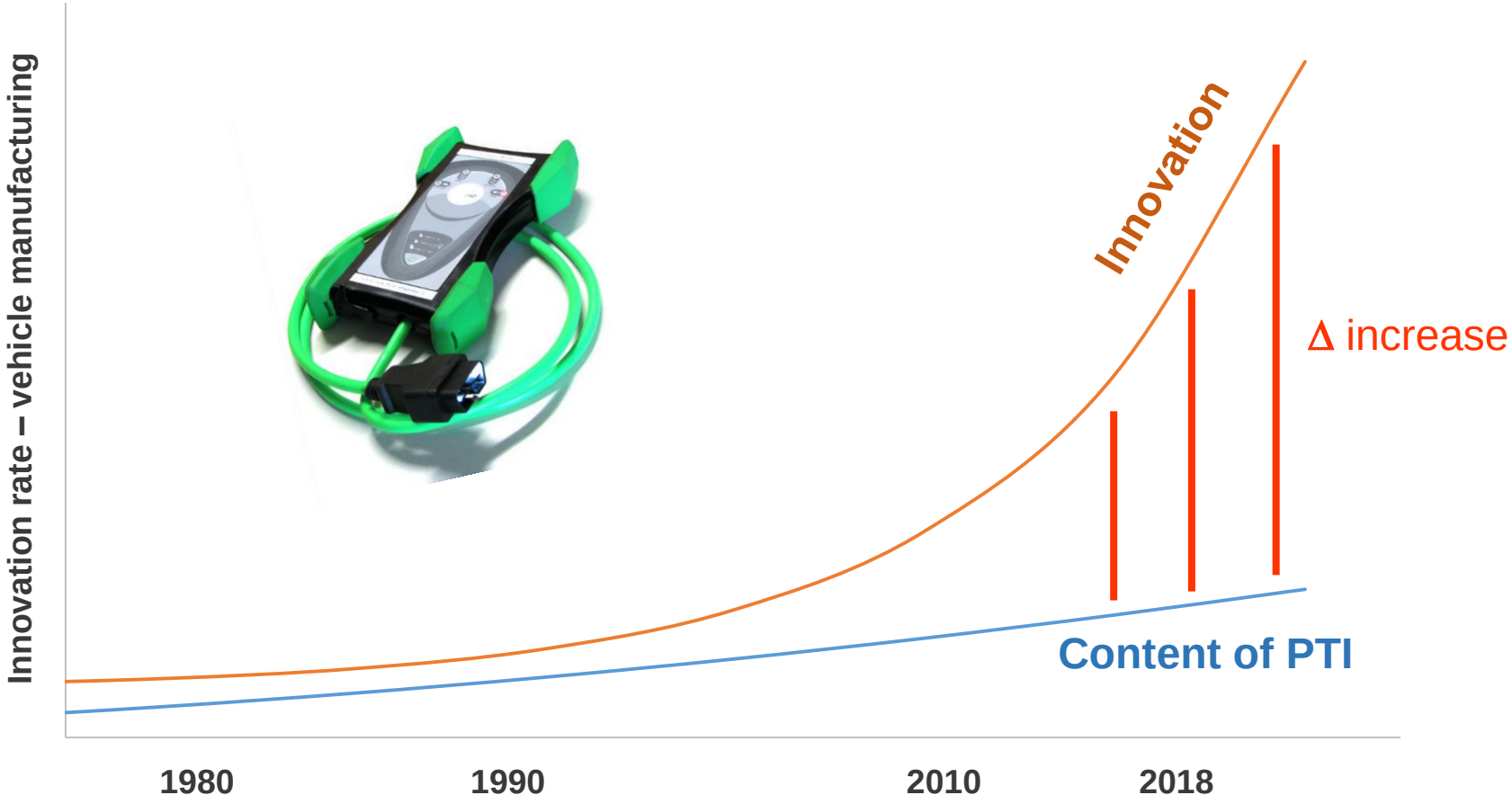
EU-Example: eCall – automated emergency call

- Obligatory for homologation from 2018
- First step testing for PTI implementation



Technology development gives new questions for the future of PTI - Role of CITA members ?

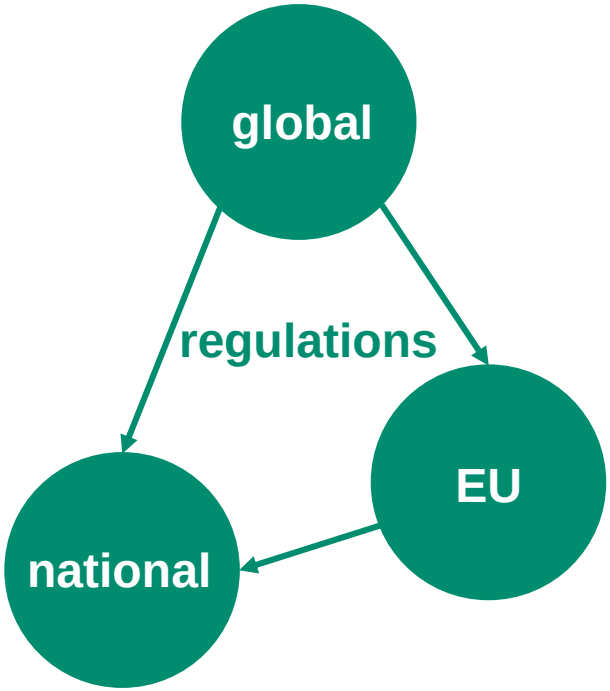
What is the impact of vehicle innovation on PTI ?



Quo vadis PTI … ?

Dr. Gerd Neumann - DEKRA Automobil GmbH

What has to be done ?



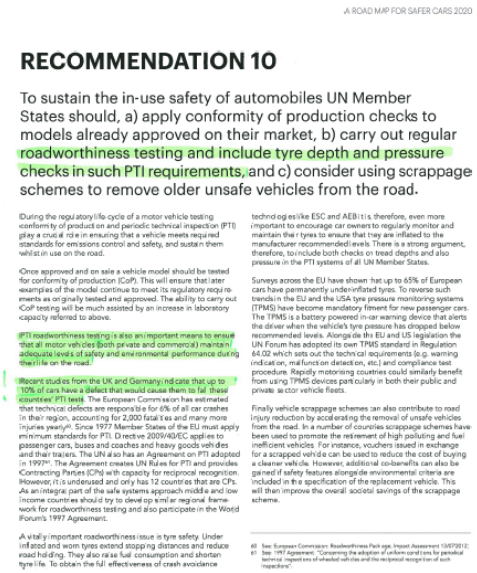
- Innovation in PTI Technology
- PTI ability as homologation standard
- continuous amendment of the relevant regulations
- …

Which role could CITA play as a global network ?

Dr. Gerd Neumann - DEKRA Automobil GmbH

Important step has been done !

CITA has taken over an important role in Geneva !



A ROAD MAP FOR SAFER CARS 2020

RECOMMENDATION 10

To sustain the in-use safety of automobiles UN Member States should, a) apply conformity of production checks to models already approved on their market, b) carry out regular roadworthiness testing and include tyre depth and pressure checks in such PTI requirements, and c) consider using scrappage schemes to remove older unsafe vehicles from the road.

During the regulatory life-cycle of a motor vehicle testing conformity of product on and periodic technical inspection (PTI) play a crucial role in ensuring that a vehicle meets required standards for emissions control and safety, and sustain them whilst in use on the road.

Once approved and on sale a vehicle model should be tested for conformity of production (CoP). This will ensure that later examples of the model continue to meet its regulatory requirements as originally tested and approved. The ability to carry out CoP testing will be much assisted by an increase in laboratory capacity referred to above.

PTI roadworthiness testing is also an important means to ensure that all motor vehicles (both private and commercial) maintain adequate levels of safety and environmental performance during their life on the road.

Recent studies from the UK and Germany indicate that up to 10% of cars have a defect that would cause them to fail these countries' PTI tests. The European Commission has estimated that technical defects are responsible for 6% of all car crashes in their region, accounting for 2,000 fatalities and many more injuries yearly[60]. Since 1977 Member States of the EU must apply minimum standards for PTI. Directive 2009/40/EC applies to passenger cars, buses and coaches and heavy goods vehicles and their trailers. The UN also has an Agreement on PTI adopted in 1997[61]. The Agreement creates UN Rules for PTI and provides Contracting Parties (CPs) with capacity for reciprocal recognition. However, it is underused and only has 12 countries that are CPs. As an integral part of the safe systems approach middle and low income countries should try to develop similar regional framework for roadworthiness testing and also participate in the World Forum's 1997 Agreement.

A vitally important roadworthiness issue is tyre safety. Under inflated and worn tyres extend stopping distances and reduce road holding. They also raise fuel consumption and shorten tyre life. To obtain the full effectiveness of crash avoidance technologies like ESC and AEB it is therefore, even more important to encourage car owners to regularly monitor and maintain their tyres to ensure that they are inflated to the manufacturer recommended levels. There is a strong argument, therefore, to include both checks on tread depths and also pressure in the PTI systems of all UN Member States.

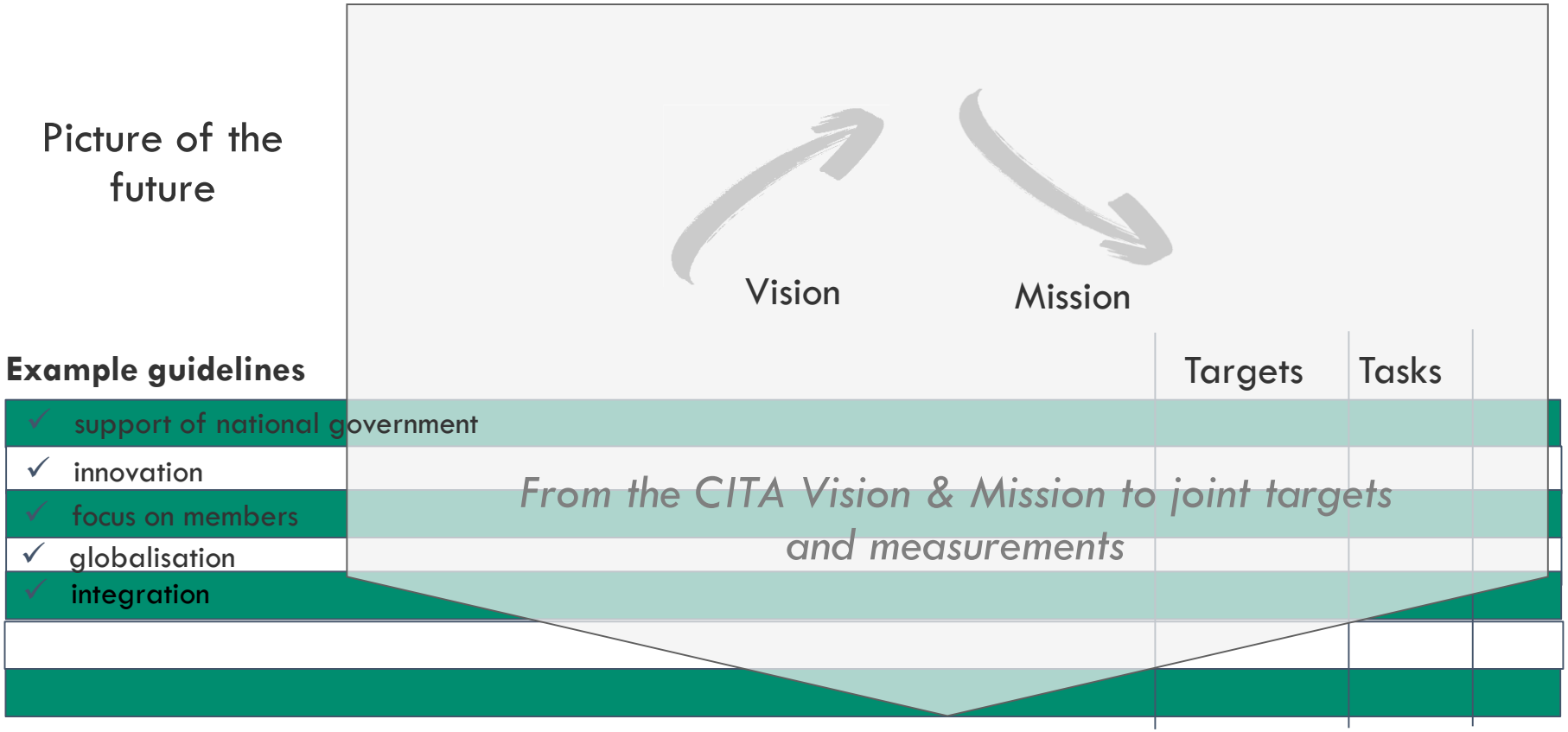
Surveys across the EU have shown that up to 65% of European cars have permanently under-inflated tyres. To reverse such trends in the EU and the USA tyre pressure monitoring systems (TPMS) have become mandatory fitment for new passenger cars. The TPMS is a battery powered in-car warning device that alerts the driver when the vehicle's tyre pressure has dropped below recommended levels. Alongside the EU and US legislation the UN Forum has adopted its own TPMS standard in Regulation 64.02 which sets out the technical requirements (e.g. warning indication, malfunction detection, etc.) and compliance test procedure. Rapidly motorising countries could similarly benefit from using TPMS devices particularly in both their public and private sector vehicle fleets.

Finally vehicle scrappage schemes can also contribute to road injury reduction by accelerating the removal of unsafe vehicles from the road. In a number of countries scrappage schemes have been used to promote the retirement of high polluting and fuel inefficient vehicles. For instance, vouchers issued in exchange for a scrapped vehicle can be used to reduce the cost of buying a cleaner vehicle. However, additional co-benefits can also be gained if safety features alongside environmental criteria are included in the specification of the replacement vehicle. This will then improve the overall societal savings of the scrappage scheme.

60 See: European Commission: Roadworthiness Package, Impact Assessment 13/07/2012.
61 See: 1997 Agreement, "Concerning the adoption of uniform conditions for periodical technical inspections of wheeled vehicles and the reciprocal recognition of such inspections".

The formulation of joint strategic goals is necessary !

The way to a realizable strategy ?



Joint acting as a success factor :
From the strategy to the implementation…. !

Thank you !

Dr. Gerd Neumann - DEKRA Automobil GmbH

Plenary Session One

Presentation 2

AUTOMATED/AUTONOMOUS VEHICLES – THE CHALLENGE FOR TYPE APPROVAL AND VEHICLE INSPECTION

Walter Nissler

Chief of Vehicle Regulations and Transport Innovations Section,
Transport Division, UN/ECE, Geneva

United Nations Economic Commission for Europe

Transport Division

2015 CITA CONFERENCE
Dubai

Automated/autonomous vehicles
The challenge for type-approval and periodic technical inspections of vehicles

Content

I. Automated/autonomous vehicles

II. WP.29
   a) WP.29 Activities
   b) WP.29 scope and organization

III. The tools of WP.29
   a) Vehicle approval/certification: the 1958 and 1998 Agreements
   b) Periodic technical inspections(PTI): the 1997 Agreement

Content

I. Automated/autonomous vehicles

II. WP.29

a) WP.29 Activities

b) WP.29 scope and organization

III. The tools of WP.29

a) Vehicle approval/certification: the 1958 and 1998 Agreements

b) Periodic technical inspections(PTI): the 1997 Agreement

UNECE – Transport Division

Vehicle approval/certification regulation challenges	Other challenges

• Adapt existing vehicle construction regulations (WP.29)
  • Update existing Regulations
  • Define proper HMI concepts
  • Identify side effects and address them
  • Design new safety concepts
  • Address interoperability issues
 	
• Integrate new technologies & standardization work (e.g. from ITU, ISO, IEC, IEEE)
 	
• Not only hardware but also software to be covered (modeling of decision making processes at conflict situations)
 	
• Don't neglect traditional vehicle safety issues
	• Adapt traffic rules? (e.g. safety distances?)
	
	• Adapt infrastructure?
	
	• Address security questions
	
	• Revise responsibility / product liability concepts
	  • Define expectations of the product / its Manufacturer
	  • Implement customer protection updates
	  • Adapt the role of the insurance companies and Define balanced relationship between «driver (owner)» / «Manufacturer» / «insurance»

UNECE – Transport Division

PTI challenges	Other challenges

• Adapt existing vehicle inspection rules (WP.29)
  • ECSS Study as a first approach
  • How to include image based systems
  • How to inspect radar/distance sensors
  • How to inspect positioning systems
  • ???
 	
• Integrate new technologies in PTI
 	
• Not only hardware but also software to be covered (checking of software versions and installation of mandatory updates)
 	
• Don't neglect traditional vehicle safety issues
	• How to inspect V2V, V2I or V2X communication?
	
	• Can / may we use information generated during the use of the vehicles for PTI?
	
	• Address data security questions during PTI

Crucial need to update regulations constantly to cover new technologies and to harmonize internationally the technical requirements

Content

I. Automated/autonomous vehicles

II. *WP.29*

a) WP.29 Activities

b) WP.29 scope and organization

III. The tools of WP.29

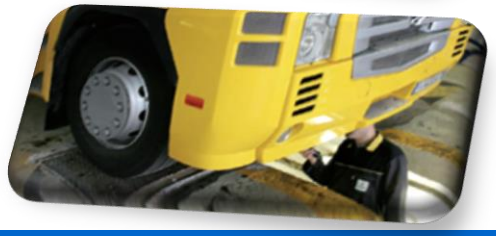
a) Vehicle approval/certification: the 1958 and 1998 Agreements

b) Periodic technical inspections(PTI): the 1997 Agreement

The World Forum for Harmonization of Vehicle Regulations (WP.29)

- UNECE Transport Division: secretariat to WP.29 for more than 60 years
- WP.29 is:
  - the unique worldwide regulatory forum for the automotive sector
  - administrating three Multilateral UN Agreements

Construction regulations
1958 Agreement – Type Approval Regulations with mutual recognition of the type approvals
1998 Agreement – Global Technical Regulations



In Use PTI regulations
1997 Agreement – Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of Such Inspection

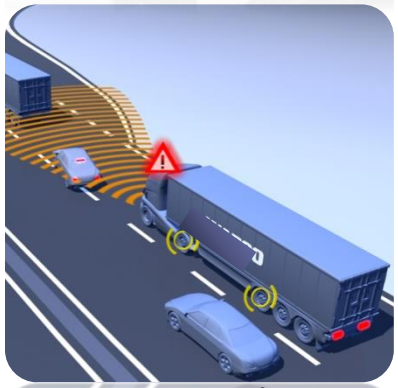
What is WP.29 doing?

Emissions of pollutants and CO_2

General safety

Passive safety

Noise



Active safety

Lighting and light signalling

The WP.29 structure

Committee for the 1958 Agreement (AC.1)
Committee for the 1998 Agreement (AC.3)
Committee for the 1997 Agreement (AC.4)

Committee for Coordination of Work (AC.2)

World Forum for Harmonization of Vehicle Regulations (WP.29)

Active Safety

GRE & GRRF

Lighting and light-signalling

Brakes and running gear

Passive Safety

GRSP

Pedestrian protection,
Head restraints,
Child restraint,
Truck cab strength

General Safety

GRSG

Safety of wheelchair users in buses & coaches,
Glazing materials,
Rear view mirrors

Environmental protection

GRPE & GRB

Pollution and Energy

Noise

Around 40 non-permanent technical groups

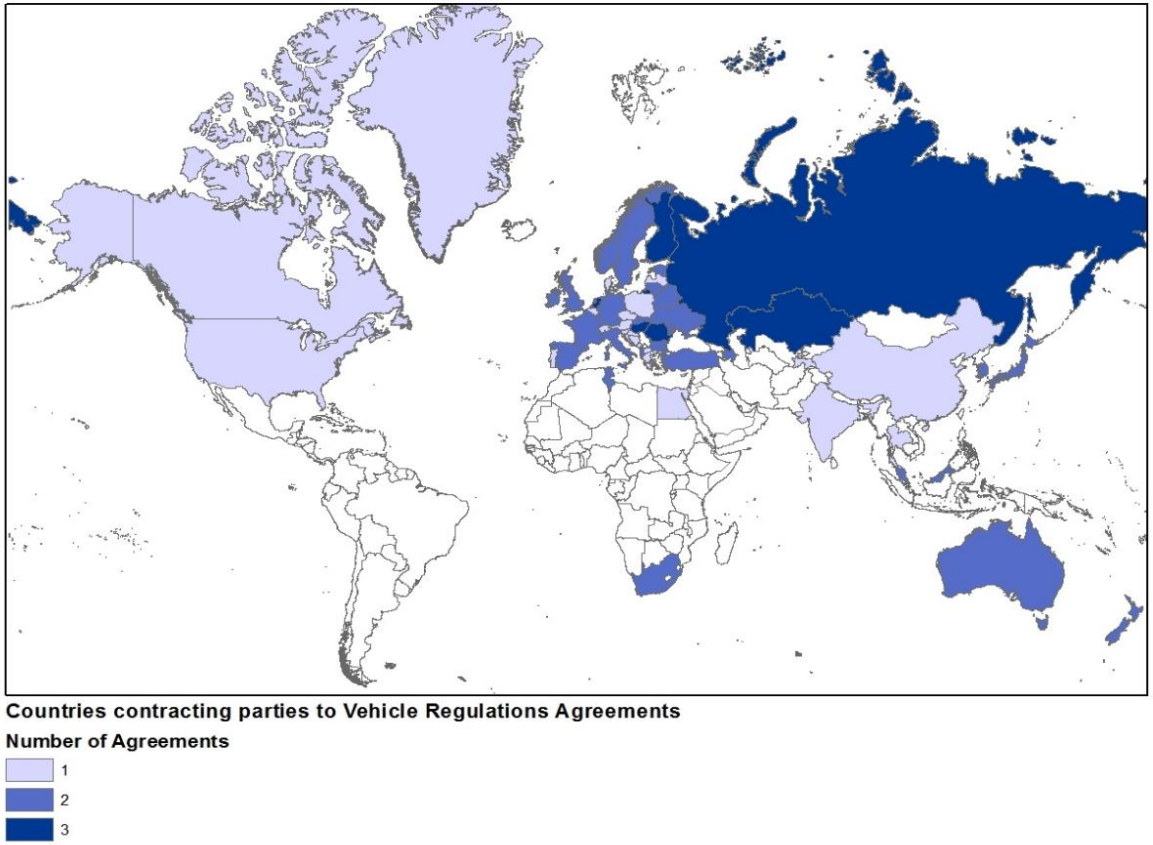
WP.29 is worldwide, unique and transparent

- Agreements open to all Nations of the UN
- Participation open to States, Governmental Organizations (GOs) and NGOs, but

Decisions are taken by Governments (of CPs)

- No other worldwide organization covers this area

Geographical scope of WP.29



Content

I. Automated/autonomous vehicles

II. WP.29

a) WP.29 Activities

b) WP.29 scope and organization

III. The tools of WP.29

a) Short introduction about the 1958 and 1998 Agreements

b) Focus on the 1997 Agreement (PTI)

Principal Elements of the 1958 Agreement

Eligible Contracting Parties to the 1958 Agreement:

Members of UN

The 1958 Agreement provides:

Legal framework for the adoption of uniform UN Regulations on the vehicle construction

Reciprocal recognition of Type Approval
Approved once and accepted everywhere (CPs)

Principal Elements of the 1998 Agreement

Eligible Contracting Parties to the 1998 Agreement:

Members of UN

The 1998 Agreement provides:

Legal framework for the adoption of uniform GTRs, to be transposed nationally

No administrative provisions (for self certification and homologation)

Principal Elements of the 1997 Agreement

Eligible Contracting Parties to the 1997 Agreement:

Members of UN

The 1997 Agreement provides:

Legal framework for the adoption of uniform UN Rules for PTI of vehicles in use

Reciprocal recognition of certificates of such inspections for cross-border use of vehicles

1997 Agreement

- UN Rule No. 1 — For environmental issues
- UN Rule No. 2 — For safety inspection

Status of the 1997 Agreement

Current PTI regulations (UN Rules)
Commercial vehicles - Vehicles of Category N2 and N3
Coach and busses - Vehicles of Category M2 and M3 (Mass > 3.5t)

WP.29 has agreed to update the UN Rules

Next steps - Amendments in discussions
Scope extension - Including vehicles below 3.5t i.e. passenger cars and vans
Update of technical provisions - e.g. for cars

Future
Extend content - Include elements relevant for level of PTI (test-equipment, skills & training of inspectors, supervision)
Make it a set of harmonized technical provisions - for vehicles in use derived from those of the 1958 & 1998 Agreements

Latest developments at WP.29

- New Informal Working Group on PTI
  - Established at 165th session March 2015
  - Chair: The Netherlands
  - Secretariat: CITA
  - Main tasks: Establish new Rules on
    - Test equipment
    - Skills, training and certification of inspectors
    - Supervision of test centres

Possible new structure for WP.29

Committee for the 1958 Agreement (AC.1)
Committee for the 1998 Agreement (AC.3)
Committee for the 1997 Agreement (AC.4)

Committee for Coordination of Work (AC.2)

World Forum for Harmonization of Vehicle Regulations (WP.29)

Active Safety

GRE & GRRF

Lighting and light-signalling

Brakes and running gear

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Pedestrian protection,
Head restraints,
Child restraint,
Truck cab strength

General Safety

GRSG

Safety of wheelchair users in buses & coaches,
Glazing materials,
Rear view mirrors

Environmental protection

GRPE & GRB

Pollution and Energy

Noise

Vehicle inspection

....

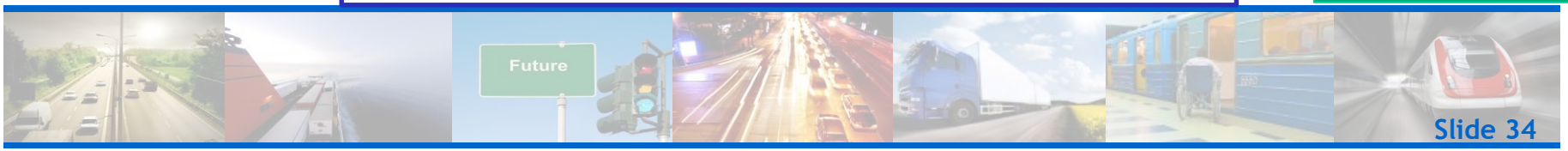
Test items, methods, defect assessment

Equipment

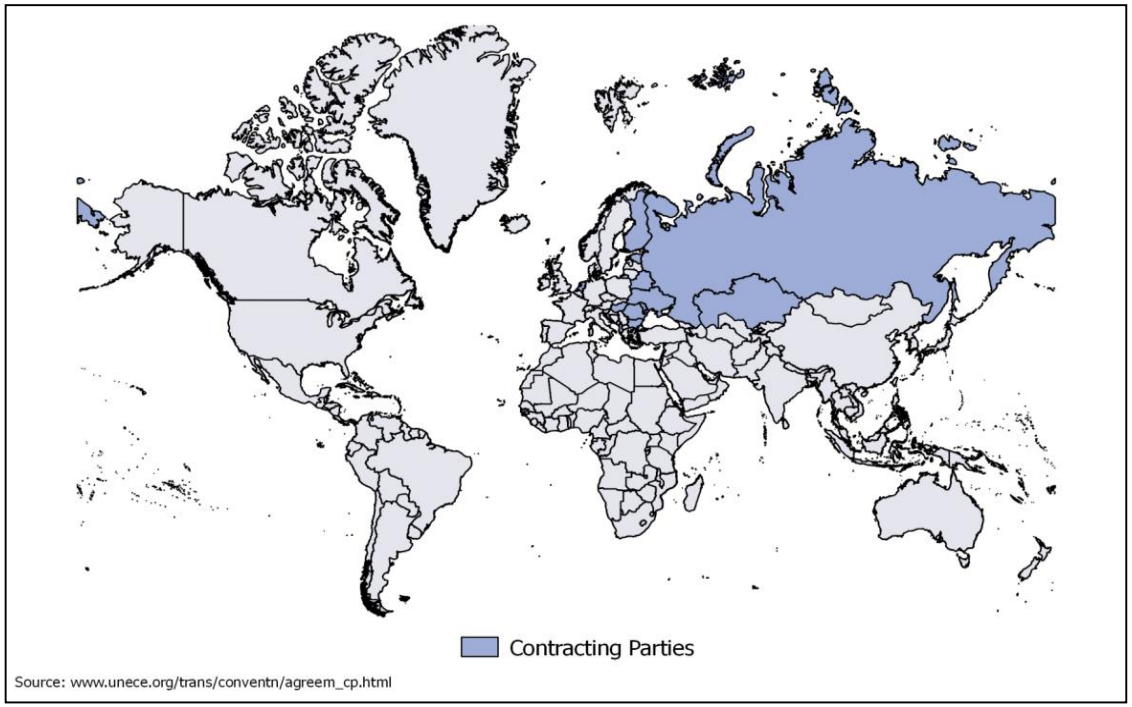
Training

Supervision

Around 40 non-permanent technical groups



Contracting Parties to the 1997 Agreement



Signatories, pending ratification:
Austria; Belgium; Cyprus; Czech Republic; Denmark; France; Georgia; Germany; Greece; Ireland; Italy; Portugal; Spain; Sweden; Switzerland; United Kingdom

THANK YOU
FOR YOUR ATTENTION

World Forum WP.29

http://www.unece.org/trans/main/welcwp29.html

UNECE – Transport Division

Plenary Session One

Presentation 3

Vehicles and Drivers of the Future: International Cooperation is Needed

Kari Hakuli

President, CIECA, Europe

“Vehicles and drivers of the future: international cooperation is needed”

Dubai, UAE, 14-16 April 2015

Mr. Kari Hakuli, CIECA President

CIECA

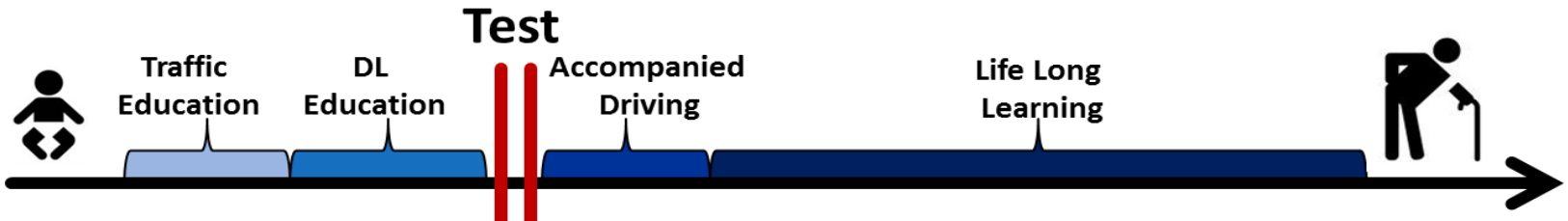
- International commission for driver testing
- Non governmental platform organization working to:
  - develop technical and scientific knowledge about driver education and assessment.
  - develop shared solutions to the safe use of motor vehicles
  - share a common understanding
- Founded in 1956
- 69 members in 35 countries
- Core members design and deliver theoretical and practical driving tests
- Managed by a Board elected by a General Assembly
- Secretariat and offices in Brussels, Belgium
- Financed by annual membership fee
- United Nations consultative status and observer status in driving licence commitee of EU Commission

Our objectives

- Improve road safety
- Improve driving standards
- Contribute to development of road traffic education
- Protect the environment
- Facilitate mobility

Why did we renew our strategy in 2011?

- We need to meet the challenges of today to make roads safer
  - Environmental awareness
  - Ageing and mobility
  - New vehicle technology and intelligent transport systems
  - Financial uncertainty
- Issues in a complex system need broader processing
- We are just a part of the system



What did we change?

- We took a broader role in road safety and driving standards
- We changed our statutes to match the new strategy
- We accepted wider range of memberships
- We started to develop partnerships with other relevant organizations in the sector
- We started to build work programs based on the strategy

What happened?

- We have got many new members (29)
- We have more cooperation with other stakeholders
- We are learning new things
- We have established a broader role in the field
- We are more global
- We have more stable financial position

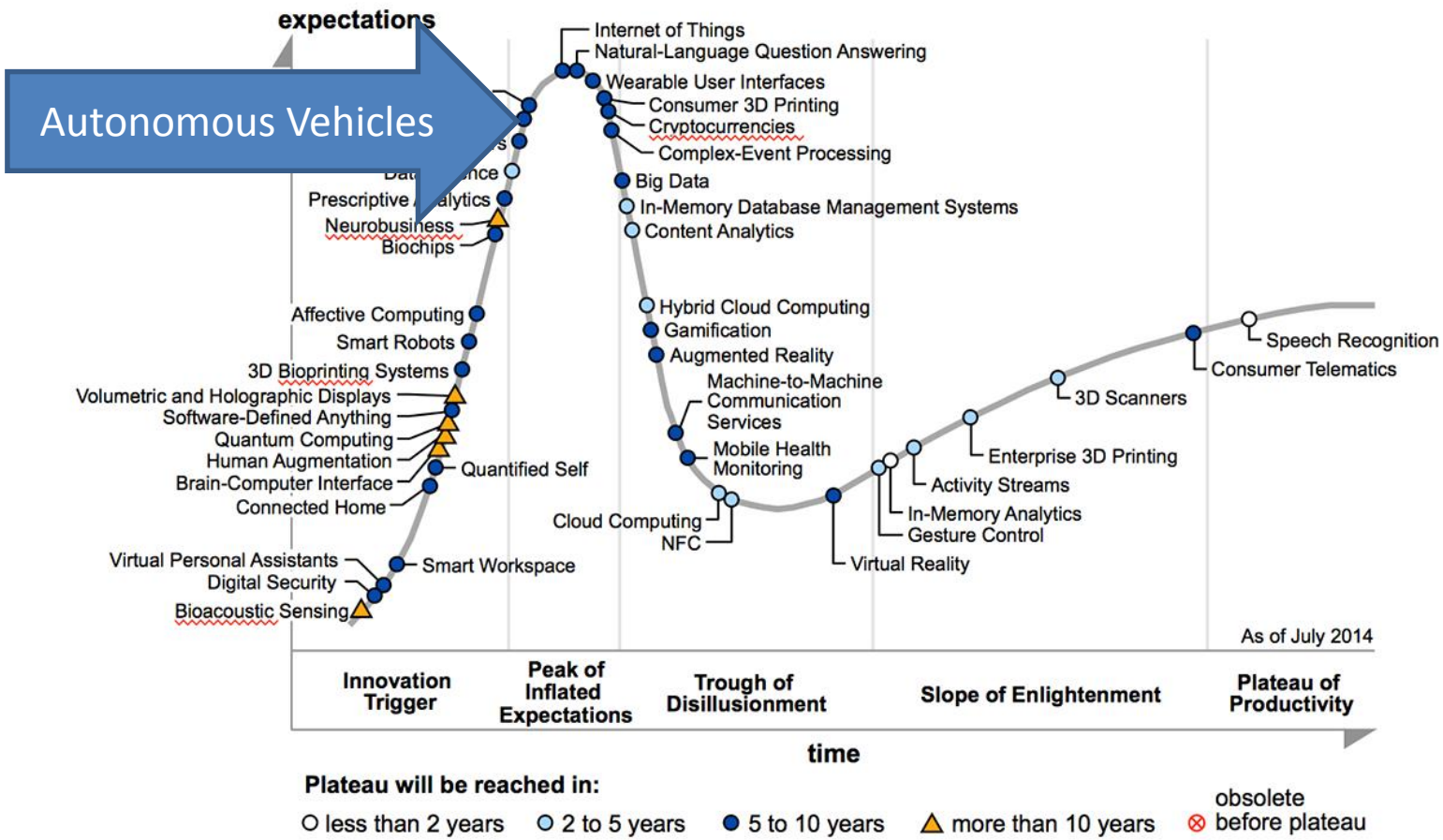
Building more bridges

- A system approach to new vehicle technology

Mercedes-Benz-F-015 concept vehicle

Hype is there already

Hype cycle 2015, Gartner inc.



Why cooperation is needed?

- Not just vehicle technical issue, also human factors (safety, usability, acceptability) and infrastructure as well as legal and institutional issues must be envisaged
- Road traffic system is complex and the interactions between the components (vehicle, driver, infrastructure) must be taken into consideration to create a safe system

Who should cooperate?

- Regulators
  - UNECE: WP1, WP29
  - EU: DGMOVE, ENT, ENER, ENV
- Vehicle manufacturing industry
- Vehicle testing and inspection industry
- Road infrastructure developers
- Driver training and testing industry
- Research institutes
- Authorities (licenses and surveillance)

Drivers of the future

- Are there any drivers?
  - From driver assisting systems into autonomous vehicles
- Drivers task is changing from manual control to supervision
- Driver education and testing have to adapt
- Vehicles have to adapt to human factors
- Legislation has to adapt more quickly

Conclusions

- It is strategically wise to broaden the horizon, look out of the box and to cooperate
- Rapid development of vehicle technology has fundamental implications for many organizations
- A system approach and cooperation is needed
- CIECA is willing to cooperate and contribute
- Together we are stronger!

Question 1:

What impact will this vehicle innovation have on roadworthiness inspection?

Answer Choices:

A. Very High

B. High

C. Moderate

D. Quite Low

Question 2:

How important is it that type approval standards are designed to facilitate in-service roadworthiness inspection?

Answer Choices:

A. Extremely High

B. High

C. Moderately Important

D. Low Importance

E. Not Important at all

Question 3:

In the future, how important will it be to coordinate these factors for new initiatives for safe and sustainable mobility?

Answer Choices:

A. Very Highly Important

B. High Importance

C. Moderately Important

D. Low Importance

E. Not Important At All

Question 4:

How difficult will it be to find appropriate solutions?

Answer Choices:

A. Very Difficult

B. Moderately Difficult

C. Quite Easy

D. Very Easy

Question 5:

Should roadworthiness standards be tailored to meet these different needs?

Answer Choices:

A. Standards should be the same worldwide

B. Each region should have different standards

C. Each country should have different standards

D. This is not an important issue

Question 6:

Do you consider that drivers are ready for this change of role?

Answer Choices:

A. Understand the implications and keen for the changed role

B. Do not understand the implications but still keen for the change

C. Neutral about the changed role

D. Are becoming aware of the implications of this change

E. Not aware if the implications for this change

LUNCH

12:00 – 13:30

PLEASE RETURN PROMPTLY TO YOUR SEATS FOR PLENARY SESSION TWO