CURRENT ITS DEVELOPMENTS
AT EU LEVEL

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Inspection, Audit and Importance of the Intelligent Transport Systems

Prishtina, 25 January 2019

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Frank Mütze

Policy and Projects Officer

European Transport Safety Council

ETSC

- ✓ **A science based approach to road safety**
- ✓ **Secretariat** in Brussels
- ✓ **60 member organisations** from across Europe
- ✓ More than **200 experts** contributing to ETSC's work
- ✓ The European Commission, Member Organisations, Member States and corporate sponsors are funding our work

ETSC NETWORK

2014-2017 bad years for road safety

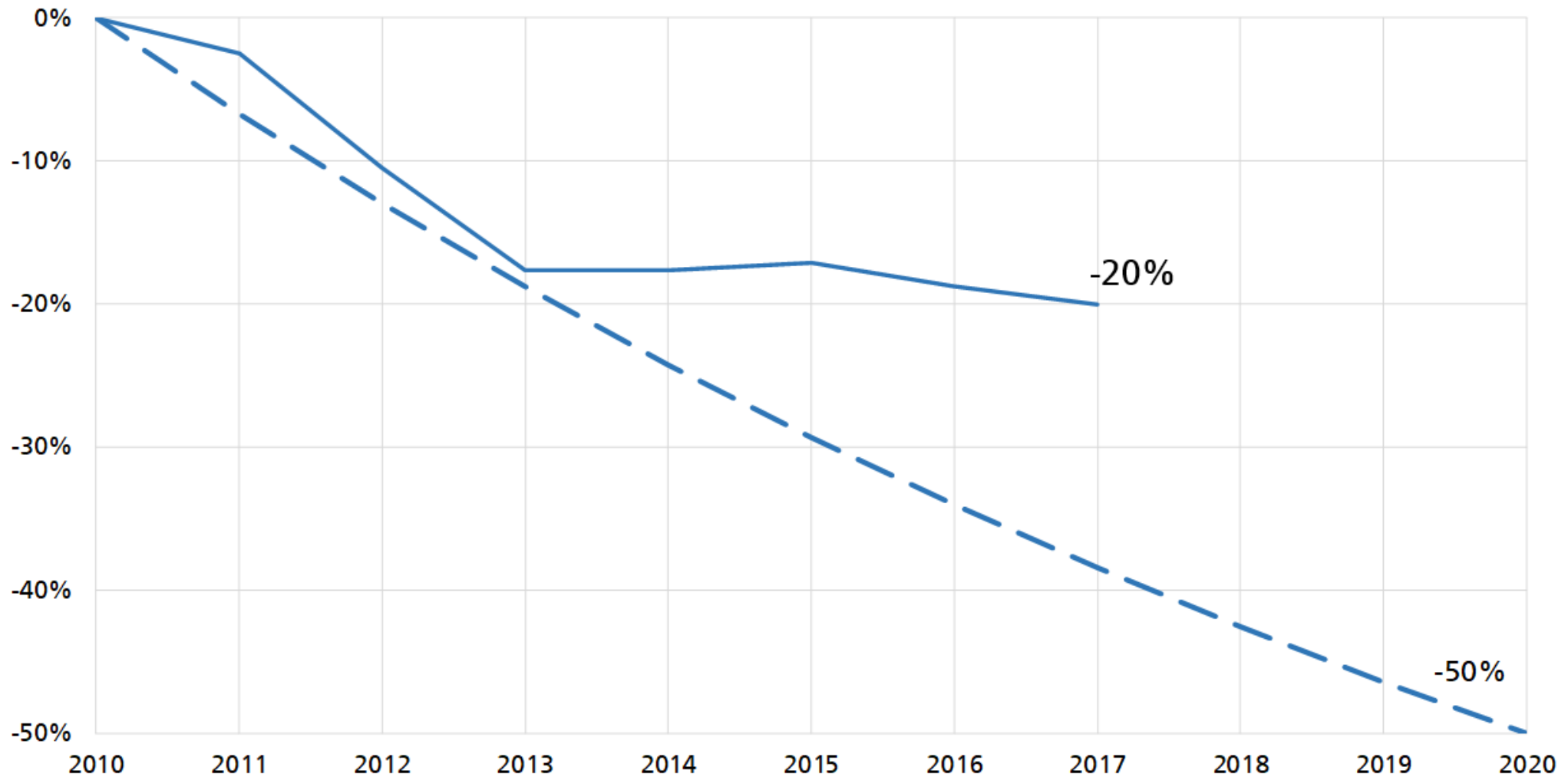# CHANGE IN ROAD DEATHS (%) 2010-2017

-20%

-50%

Figure: Reduction in the number of road deaths since 2010 (blue line) plotted against the EU target for 2020 (blue dotted line)

25,250

people died in road traffic in the EU in 2017

"Two passenger planes crash, killing everyone on board..."

This is how many people die on EU roads every week

135,000

seriously injured in road traffic in the EU in 2017 according to MAIS3+ definition

*MAIS3+ estimates by the European Commission

EU Directive 2010/64 – The ITS Directive

- Framework supporting coordinated and coherent deployment and use of ITS across Europe
  - Development of specifications for compatibility, interoperability and continuity of services
  - Priority Areas and Priority Actions

EU Directive 2010/64 – The ITS Directive

Priority Areas

I. Optimal use of road, traffic and travel data,

II. Continuity of traffic and freight management ITS services,

III. **ITS road safety and security applications**,

IV. **Linking the vehicle with the transport infrastructure**.

eCall

EU Directive 2010/64 – The ITS Directive

Priority Areas

(d) the harmonised provision for an interoperable EU-wide **eCall**;

When collision is detected or manually triggered:

- Automatically establishes audio connection with emergency services via 112; and
- Sends data package to emergency services with time, accurate location, and travel direction

- 40%-50% faster response time
- Mandatory in new vehicles since 31 March 2018

EU Directive 2010/64 – The ITS Directive

Review & Revision 2018

EU Directive 2010/64 – The ITS Directive

Review & Revision 2018

Extended current Directive with 5 years

Evaluation on-going

New Directive in 2023?

GENERAL SAFETY REGULATION

- Type-approval system before vehicle go on the road

- Exclusive competence of the EU

- Significantly improved vehicle safety and road safety
  - International recognition

- Protection of occupants and vulnerable road users

Proposed Revision

- 17 Measures to improve vehicle safety

- Focus on 'advanced driver assist systems'
  - e.g. ISA, AEBS, Emergency Lane Keep Assist

EUROPEAN COMMISSION

Brussels, 17.5.2018
COM(2018) 286 final

2018/0145 (COD)

Proposal for a

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users, amending Regulation (EU) 2018/… and repealing Regulations (EC) No 78/2009, (EC) No 79/2009 and (EC) No 661/2009

(Text with EEA relevance)

{SEC(2018) 270 final} - {SWD(2018) 190 final} - {SWD(2018) 191 final}

EN

EN

GSR = HUGE LIFE SAVING POTENTIAL

25,000

CONSERVATIVE

A REGULATION AS IMPORTANT FOR SAVING LIVES AS THE SEATBELT
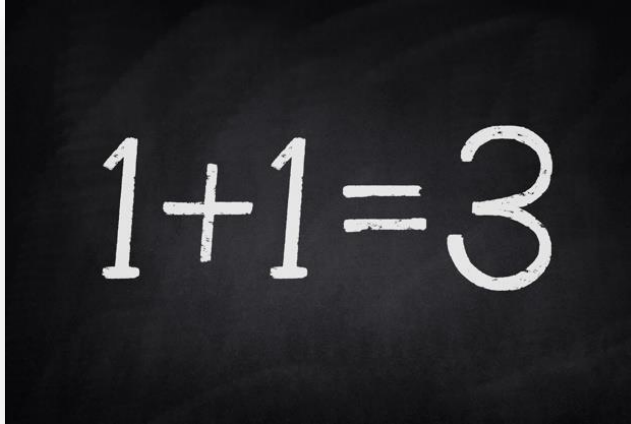
acco... ...by TRL *https://bit.ly/2IN9ltl*

Intelligent Speed Assistance

INTELLIGENT SPEED ASSISTANCE (ISA)

- Speed is a primary contributory factor in 1/3 of fatal collisions

- ISA actively helps the driver to keep to the speed limit
  - Overridable

- 20% reduction in road deaths, 30% reduction of collisions

Intelligent Speed Assistance

With ISA, top speeds are curtailed. So:

- AEB will have more opportunity to prevent crashes

- When there are crashes, occupant protection systems will have a greater chance of preventing harm

Intelligent Speed Assistance

INTELLIGENT SPEED ASSISTANCE (ISA)

How does the system know the speed limit?

Through:

- Speed sign recognition and/or
- Digital maps and/or
- Cooperative-ITS

TN-ITS
Map Update Exchange

- Fostering the exchange of related road data between the source, Member States' road authorities, and the data users, such as map makers and other parties
- Static map data such as speed limits

iSAFER

TN-ITS GO
Map Update Exchange

- Maintainance of TN-ITS Standard: CEN TS 17268
- **Expand TN-ITS Service to 9 new EU Member States**
- **Extend the TN-ITS Service in the 6 existing EU Member States**
- Implementing a feedback loop
- Implementation Guidelines

COOPERATIVE INTELLIGENT TRANSPORT SYSTEMS

Connectivity between:

- Vehicles
- Infrastructure
- Pedestrians
- Bicycles
- Everything

COOPERATIVE INTELLIGENT TRANSPORT SYSTEMS

-7%
Fatality
Reduction

- Dynamic In-vehicle Speed Limits
- Emergency Electronic Braking Light
- Road works warning
- Weather conditions
- Intersection safety

COOPERATIVE INTELLIGENT TRANSPORT SYSTEMS

EUROPEAN COMMISSION

Brussels, 30.11.2016
COM(2016) 766 final

COMMUNICA...
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COMMIT...

A European strategy o...
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Day 1 C-ITS services list

Hazardous location notifications:
- Slow or stationary vehicle(s) & traffic ahead warning;
- Road works warning;
- Weather conditions;
- Emergency brake light;
- Emergency vehicle approaching;
- Other hazards.

Signage applications:
- In-vehicle signage;
- In-vehicle speed limits;
- Signal violation / intersection safety;
- Traffic signal priority request by designated vehicles;
- Green light optimal speed advisory;
- Probe vehicle data;
- Shockwave damping (falls under European Telecommunication Standards Institute (ETSI) category 'local hazard warning').

Day 1.5 C-ITS services list
- Information on fuelling & charging stations for alternative fuel vehicles;
- Vulnerable road user protection;
- On street parking management & information;
- Off street parking information;
- Park & ride information;
- Connected & cooperative navigation into and out of the city (first and last mile, parking, route advice, coordinated traffic lights);
- Traffic information & smart routing.

EU Strategy

- List of actions includes:
  - Priority for deployment
  - Security of communication
  - Privacy and data protection
  - Communication technologies
  - Interoperability
  - Conformity Assessment
  - Legal Framework

COOPERATIVE INTELLIGENT TRANSPORT SYSTEMS

Upcoming soon:

Delegated Act on C-ITS

Setting out specifications for the:

- Services
- Communication technology

EUROPEAN COMMISSION

Brussels, 30.11.2016
COM(2016) 766 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS

A European strategy on Cooperative Intelligent Transport Systems, a milestone towards
cooperative, connected and automated mobility

COOPERATIVE INTELLIGENT TRANSPORT SYSTEMS

ETSC Recommendations

ETSC

European Transport Safety Council

BRIEFING

Cooperative Intelligent
Transport Systems (C-ITS)

November 2017

- Mandate safety enhancing C-ITS services
  - Day 1 Services:
    - In-vehicle speed limits, including dynamic speed limits
    - Emergency electronic braking light
    - Road works warning
    - Weather conditions, linked to dynamic in-vehicle speed limits
    - Intersection safety
  - Day 1.5 Services:
    - Vulnerable road user protection

- Retrofitting older vehicles

PAVING THE WAY FOR AUTOMATED DRIVING

ISA is a building block for future autonomous driving. Respecting speed limits is a pre-requisite for vehicle automation.

But also AEBS, LKAS, and EDR prepare vehicles for the future.

GENERAL SAFETY REGULATION

PAVING THE WAY FOR AUTOMATED DRIVING
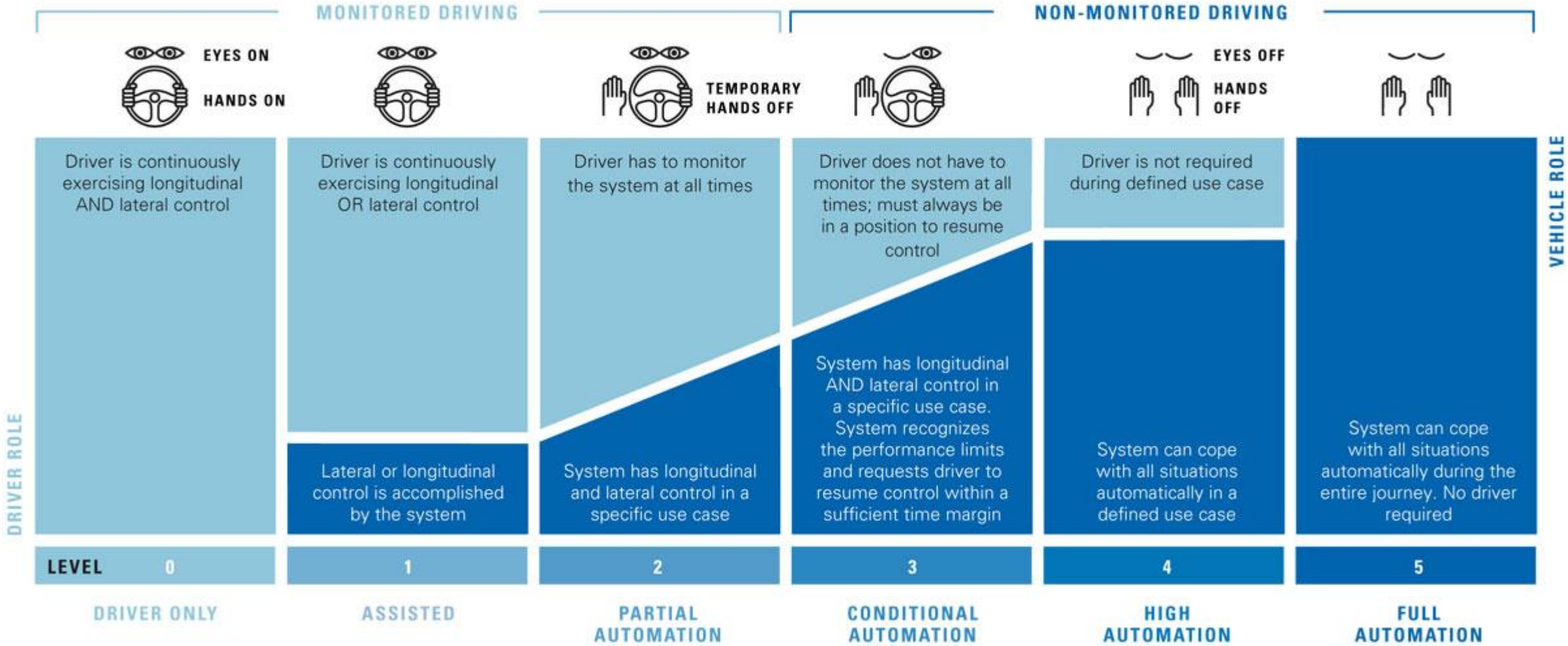
Article 11

Specific requirements relating to automated vehicles

1. In addition to the other requirements of this Regulation and of the delegated acts adopted pursuant to it that are applicable to vehicles of the respective categories, automated vehicles shall comply with the requirements set out in the delegated acts adopted under paragraph 2 relating to:

(a) systems to replace the driver's control of the vehicle, including steering, accelerating and braking;

(b) systems to provide the vehicle with real-time information on the state of the vehicle and the surrounding area;

(c) driver readiness monitoring systems;

(d) event (accident) data recorders for automated vehicles;

(e) harmonised format for the exchange of data for instance for multi-brand vehicle platooning.

2. In order to ensure the safe operation of automated vehicles on public roads, the Commission is empowered to adopt delegated acts in accordance with Article 12 to lay down requirements relating to the systems and other items listed in points (a) to (e) of paragraph 1 of this Article, and to lay down detailed rules concerning the specific test procedures and technical requirements for the type-approval of automated vehicles with regard to those requirements.

AUTOMATED DRIVING

MONITORED DRIVING — NON-MONITORED DRIVING

EYES ON / HANDS ON	EYES ON	TEMPORARY HANDS OFF		EYES OFF / HANDS OFF	EYES OFF
Driver is continuously exercising longitudinal AND lateral control	Driver is continuously exercising longitudinal OR lateral control	Driver has to monitor the system at all times	Driver does not have to monitor the system at all times; must always be in a position to resume control	Driver is not required during defined use case	
	Lateral or longitudinal control is accomplished by the system	System has longitudinal and lateral control in a specific use case	System has longitudinal AND lateral control in a specific use case. System recognizes the performance limits and requests driver to resume control within a sufficient time margin	System can cope with all situations automatically in a defined use case	System can cope with all situations automatically during the entire journey. No driver required

DRIVER ROLE / VEHICLE ROLE

LEVEL	0	1	2	3	4	5
	DRIVER ONLY	ASSISTED	PARTIAL AUTOMATION	CONDITIONAL AUTOMATION	HIGH AUTOMATION	FULL AUTOMATION

AUTOMATED DRIVING

Road safety: Safe vehicles, safe drivers, safe roads

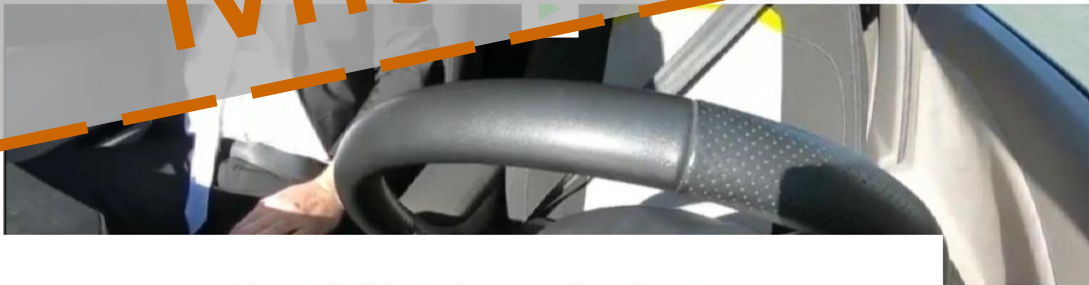90% OF ACCIDENTS = HUMAN ERROR

DISTRACTION

(17) Automated and connected vehicles may be able to make a huge contribution in reducing road fatalities since in the region of 90 per cent of road accidents are estimated to result from human error. As automated vehicles will gradually be taking over tasks of the driver, harmonised rules and technical requirements for automated vehicle systems should be adopted at Union level.

MISINFORMATION

De zelfrijdende auto kan levens redden: 9 op de 10 ongevallen door mens veroorzaakt

Pieterjan Huyghebaert
ma 26 nov 06:00

VEHICLE TECHNOLOGIES & AUTOMATED CARS

Safer Roads with Automated Vehicles?

Corporate Partnership Board Report

OECD

Human error does not imply driver responsibility

"Human error" is a specific concept used in forensic crash analysis to help classify and attribute operator-induced causes. It is based on the judgement of post-crash investigators, who exhibit varying levels of skill and experience, at the scene of the crash or on the basis of post-crash reports – themselves written by investigators with variable skills and experience. With the exception of impaired driving and time-stamped interactions with potentially distracting devices, such as phones, human error is the result of a deduction based on the absence of mechanical failure or infrastructure defects (Noy et al., 2018).

Despite new sources of incident-relevant data, differences in methodological approaches and other factors contribute to wide divergences in findings of human error contribution to crashes. One example is the case of fatigue as a contributory factor in crashes with involvement rates ranging from less than 5% to nearly [...] looking at the potential safety [...] fatal crashes may be [...]

Human error does not imply driver responsibility

A second aspect to consider when assessing the scope for automation to improve safety outcomes by removing human errors in crash causation is that it does not follow that all crashes attributed to human error could have been reasonably avoided by drivers (Noy et al., 2018). Many crashes that involve human error also involve other factors that may have still led to a crash even if the human had not committed an error in judgement or misperception. Errors linked to poor roadway design (e.g. roads designed for lower speeds than legally allowed, confusing junction design, etc.) or faulty vehicle and interface design (confusing display or interfaces or visual obstruction) are often attributed to human causes when they are, in fact, design-induced errors (Noy et al., 2018). Human error can also be non-driver-related errors, by pedestrians, cyclists and motorcyclists. Since they won't be automated, their errors will probably not be eliminated by automation.

These considerations do not likely impact the general finding that automation may contribute to significantly better safety outcomes, but it may temper the assessment of automation benefits versus disbenefits. More generally, they indicate that the starting point for the discussion around the safety benefits of automation may not lie where many believe it to – namely that automation will improve road

Safer Roads with Automated Vehicles?

Corporate Partnership Board Report

- Accident investigation
  - Human factor assumed when there are no vehicle or infrastructure defects
    - Proportion overstated

- Many crashes that involve human error also involve other factors that may have still led to a crash even if the human had not committed an error in judgement or misperception
  - Design faults in infrastructure and/or vehicle/interface

International Transport Forum | CPB Corporate Partnership Board

Safer Roads with Automated Vehicles?

Corporate Partnership Board Report

OECD

- Collisions by pedestrians, cyclists and bikers

- Despite not drinking alcohol or being distracted by smartphones, will automated/autonomous vehicles actually be able to driver safer than humans?

- New types of collision causes:
  - Technology not functioning (sufficiently) well
  - Overreliance by driver

AUTOMATED DRIVING

Overreliance by drivers on vehicle technologies

- Vital that drivers know exactly what the capabilities and limitations of the systems are
  - Education
  - Awareness raising

- Essential that there is good communication between vehicle, driver and other road users
  - Human Machine Interface (HMI)
    - Internal and External

RECOMMENDATION

New technologies will, and self-driving cars may, significantly improve road safety.

However, they are no silver bullet to prevent all collisions instantaneously.

It is therefore important that a wide variety of measures will still be implemented to make all aspects of road traffic safer.

FALEMINDERIT!

www.etsc.eu   @etsc_eu

Frank Mütze
Policy and Projects Officer
frank.mutze@etsc.eu

European Transport Safety Council

BRIEFING
Cooperative Intelligent
Transport Systems (C-ITS)

November 2017