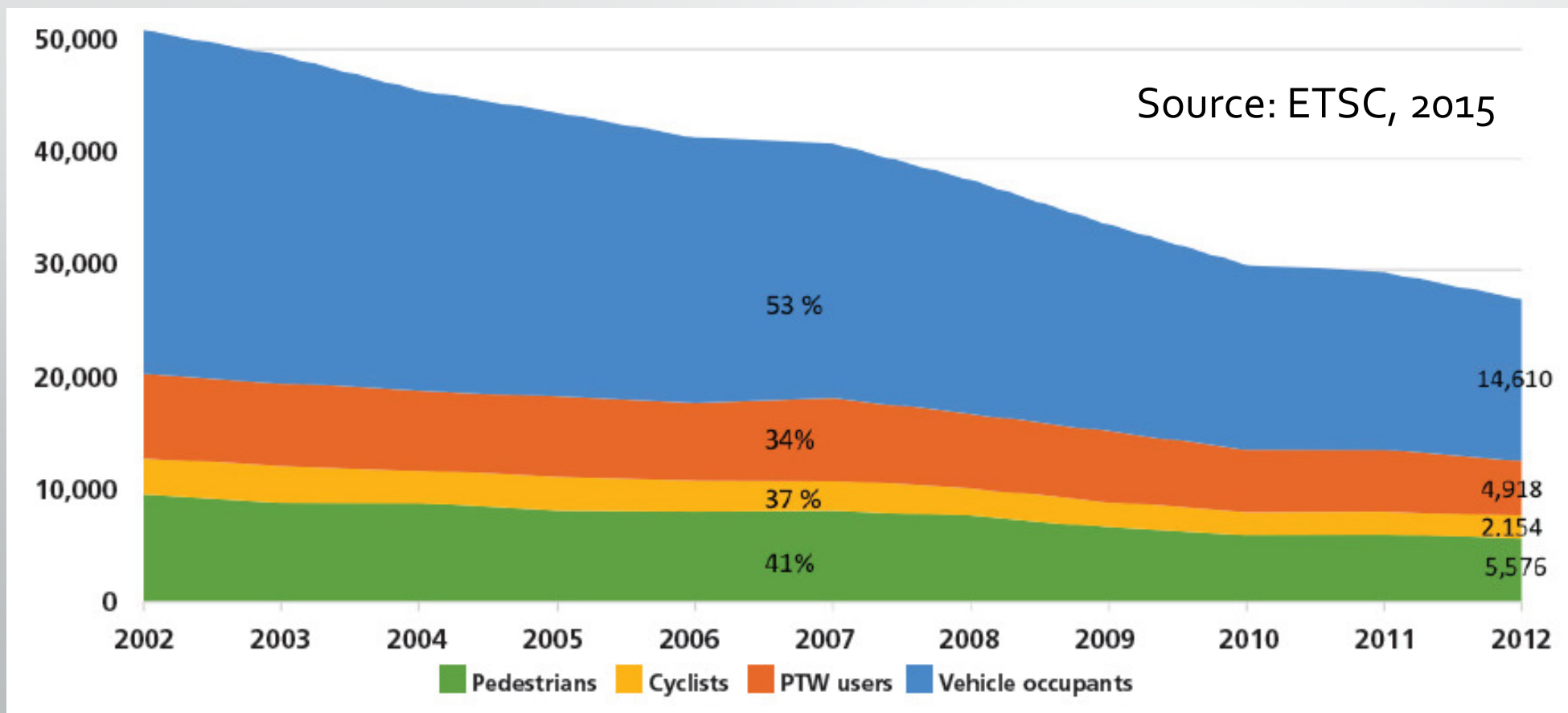


# What is the potential of new vehicle standards to deliver on EU safety targets?

Oliver Carsten  
Institute for Transport Studies  
University of Leeds  
UK

## Trends in fatalities: Europe – decline in road deaths 2002-2012



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# EU Vehicle regulation

- The General Safety Regulation and the Pedestrian Safety Regulation set the minimal safety standards for new vehicles sold in Europe
  - Last revision was in 2009
- General Safety Regulation (GSR) study to consider the potential of crash avoidance technologies to supplement crash mitigation technologies (published March 2015)
- Sets the European regulatory agenda for future vehicles
- Legislation is proposed by the European Commission and then goes for decision to the European Parliament and Council



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# A radical change in vehicle regulation, 2015

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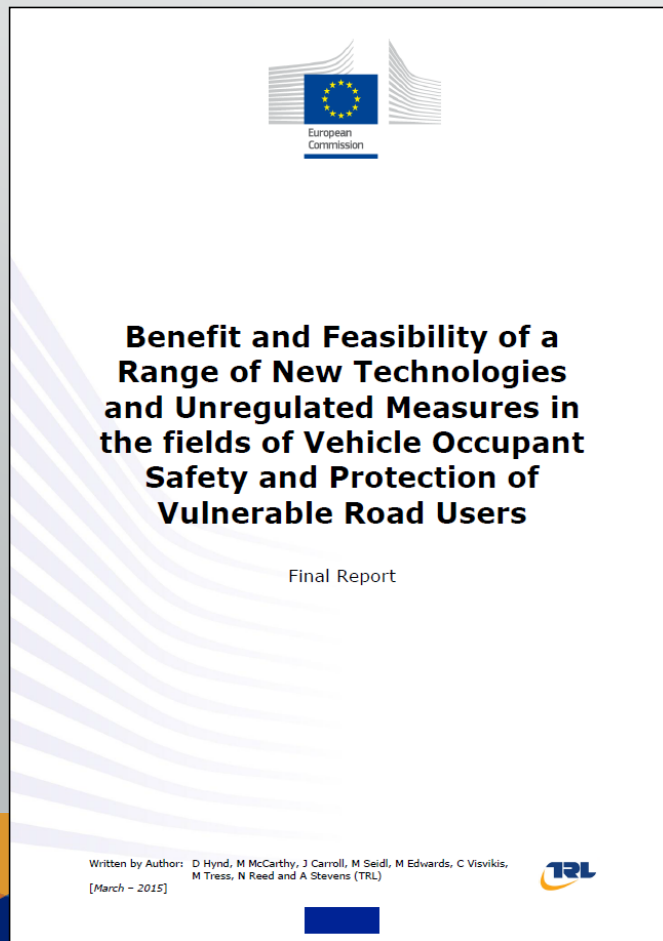
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# The GSR study report: active safety



## Active Safety

“Based on the evidence reviewed, the following measures were considered to be likely to be cost-beneficial and could on that basis be taken into consideration:

- Enhanced AEB with collision mitigation
- Intelligent speed adaptation
- Lane keep assist
- Reversing detection and reversing camera systems
- Emergency brake light display”

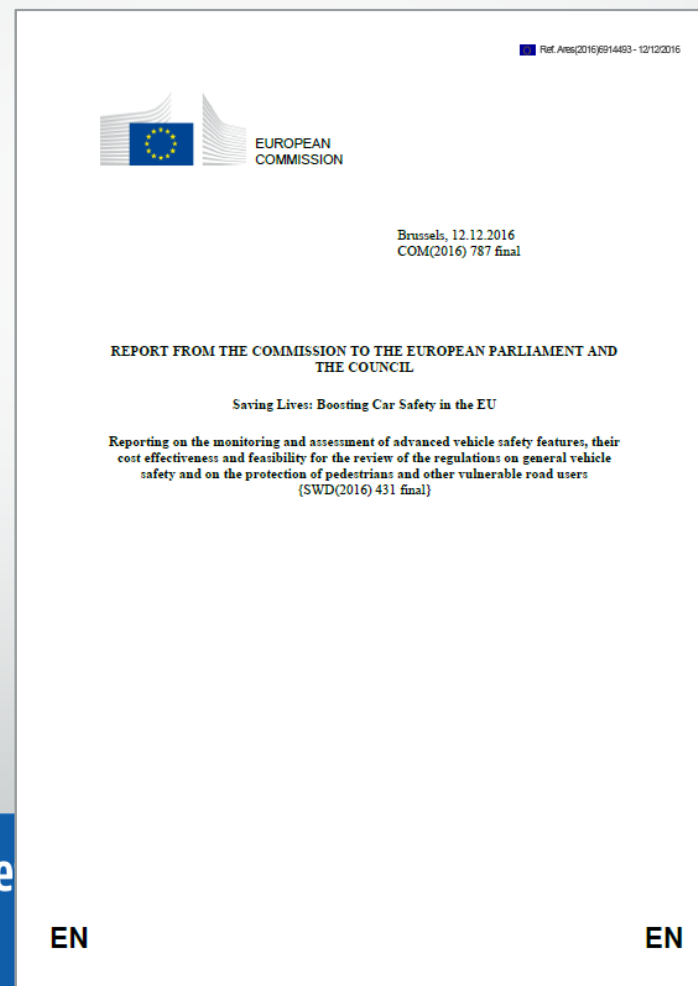
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## GSR2 study and European Commission communication, Dec 2016

- TRL have carried out a further study (GSR2)
- More detailed investigation of costs and technology packages
- Stakeholder consultation in Nov 2016



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# Recommended active safety measures

“This main area covers measures that have the ability to avoid accidents altogether rather than to mitigate their outcome and is generally considered the most important area of future vehicle safety legislative advancement.”

- The safety features are:
- automatic emergency braking (AEB)
- intelligent speed adaptation (ISA)
- lane keep assistance (LKA)
- driver drowsiness and distraction monitoring



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# Recommended passive safety measures

“This area covers accident mitigation measures consisting of introduction of new requirements or enhancing of existing measures in the field of:”

- emergency braking display (flashing stop lamps)
- seat belt reminder (SBR)
- frontal crash testing
- side crash testing
- rear crash testing
- alcohol interlock device interface standardisation
- crash event data recorder (EDR)
- pressure monitoring



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# Recommended measures for trucks and buses

“The measures under consideration to improve the safety of trucks and buses are the introduction or improvement of:”

- front-end design and direct vision
- truck and trailer rear underrun protection (rear bumper)
- lateral protection (side guards)
- fire safety for buses



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# Recommended measures for pedestrian and cyclist safety

“This area foresees the introduction of:”

- pedestrian and cyclist detection (linked to automatic emergency braking systems)
- head impact protection on A-pillars and front windscreen
- reversing (backing up) detection of persons behind vehicles



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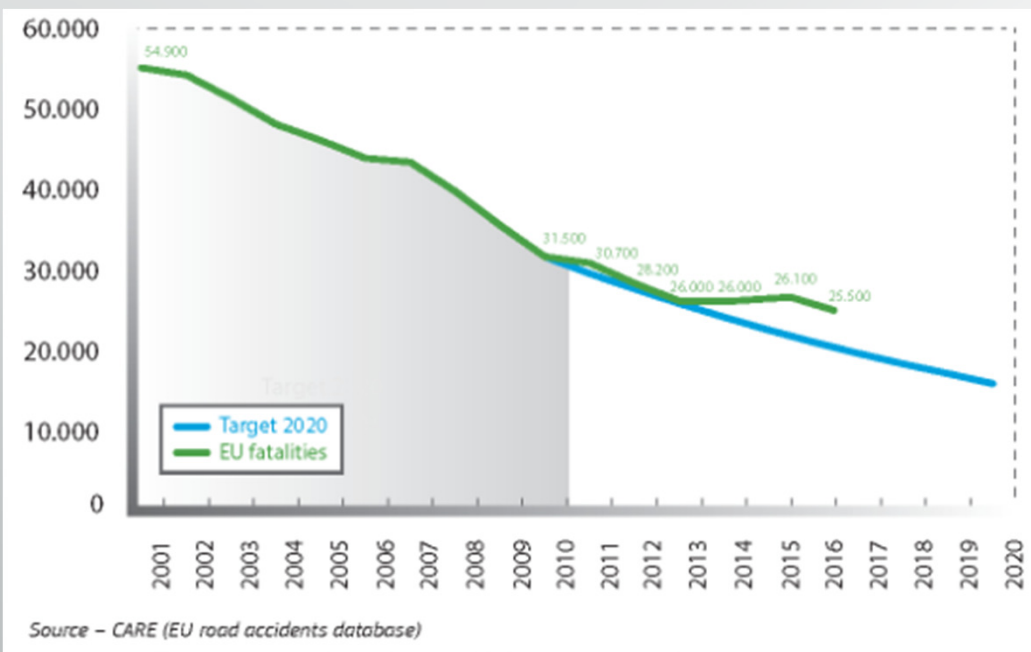
# Back to active safety: how many lives will be saved?

ISA Variant	Predicted Reduction for GB
Advisory ISA	-2.7%
Assisting (Overridable) ISA	-12.0%
Assisting (Non-Overridable) ISA	-28.9%

→ = -50% for fatal crashes



# ISA and AEB work together in synergy



- With excess speed curtailed, AEB (including pedestrian and cyclist AEB) has a greater chance to succeed in:
  - Preventing collision
  - Preventing injury





## Paving the way for automated driving

### GEAR 2030 WG2 Conclusions/Recommendations on Road Safety

*"When operating under vehicle control (vehicle replacing the driver), vehicles shall obey all relevant traffic rules. This would include, for example, speed limits (fixed, variable and dynamic)..."*

- So ISA, even a non-overridable ISA, will be a necessity



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# Conclusions

- The recommended GSR/PSR measures offer perhaps the most important safety opportunity in a generation
- Many of the technologies and measures will be necessary features of automated vehicles
- We need political support for the measures in Parliament and the Member States



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Thank you for your attention!

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