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Why Intelligent Speed Assistance (ISA) is a must

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iSAFER

INTELLIGENT SPEED ASSISTANCE FOR EUROPEAN ROADS

Speed

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"Speed remains a very important risk factor. It has a greater effect on the number of accidents and injury severity than almost all other known risk factors."

Rune Elvik, *The Power Model of the relationship between speed and road safety: Update and new analyses* (2009)

Collision speed and the risk of pedestrian death

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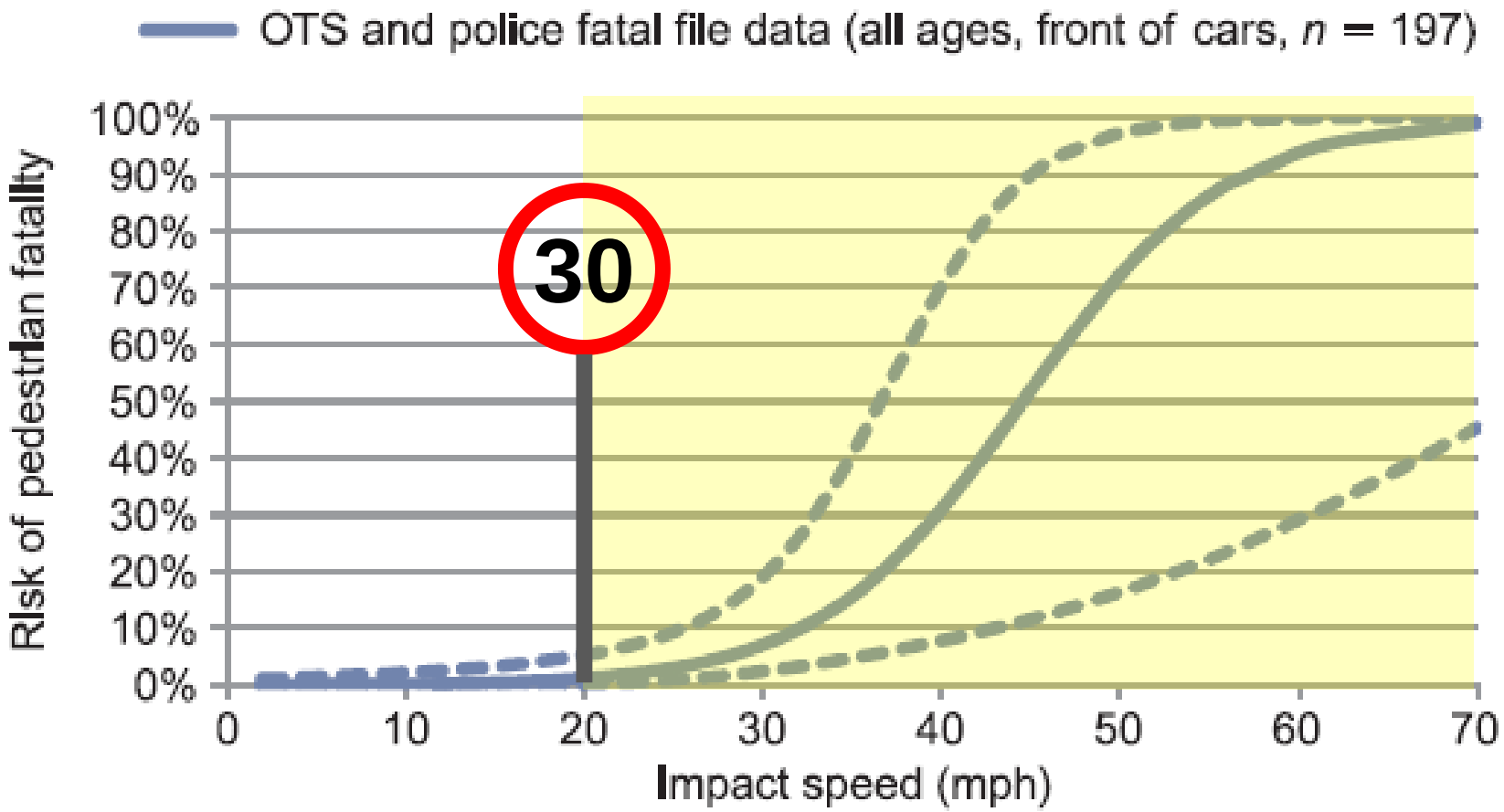

Source: UK DfT, 2010
(dashed lines show 95% confidence interval)

Collision speed and the risk of car driver death in side collisions

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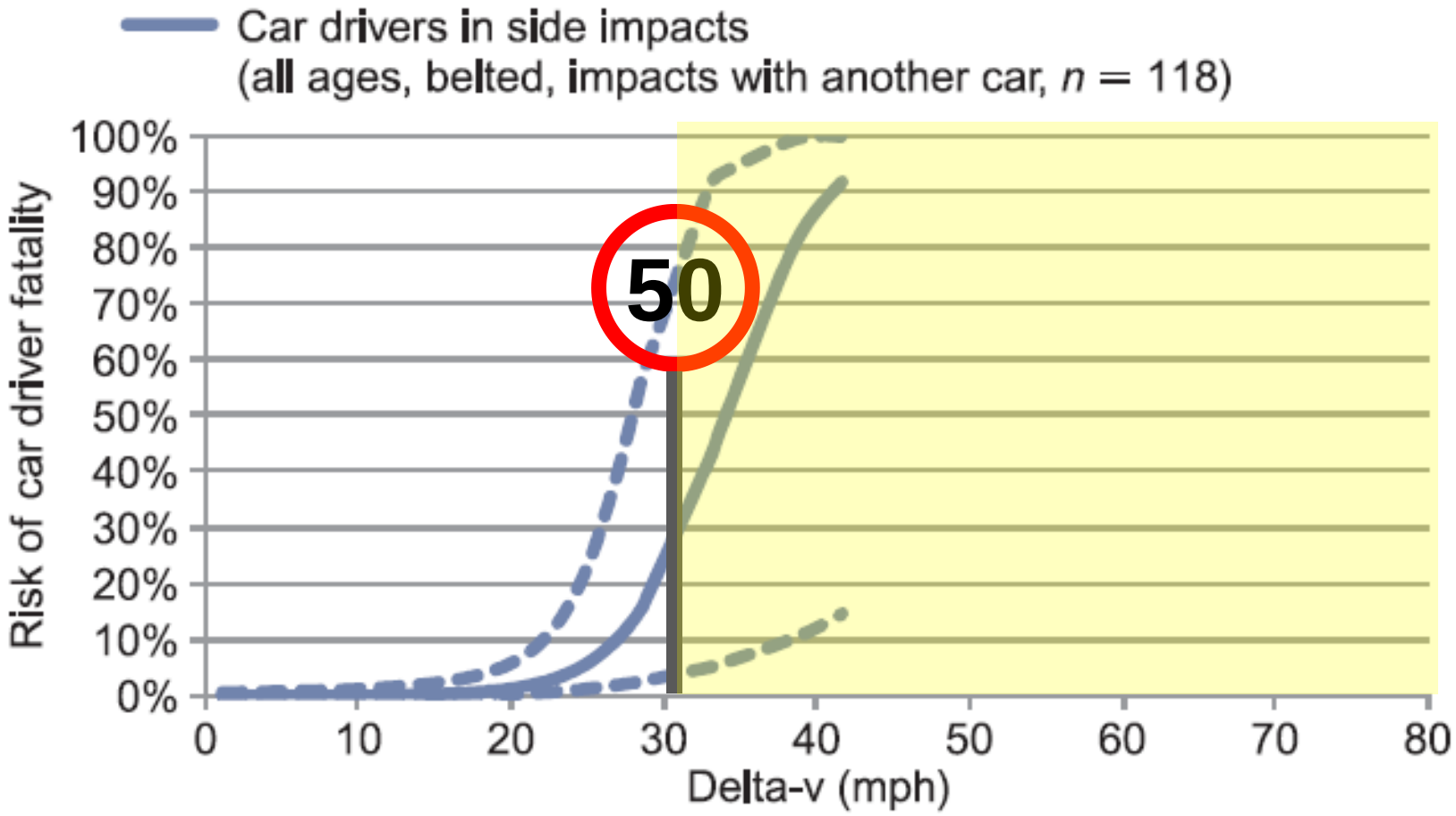

Source: UK DfT, 2010
(dashed lines show 95% confidence interval)

Collision speed and the risk of car driver death in frontal collisions

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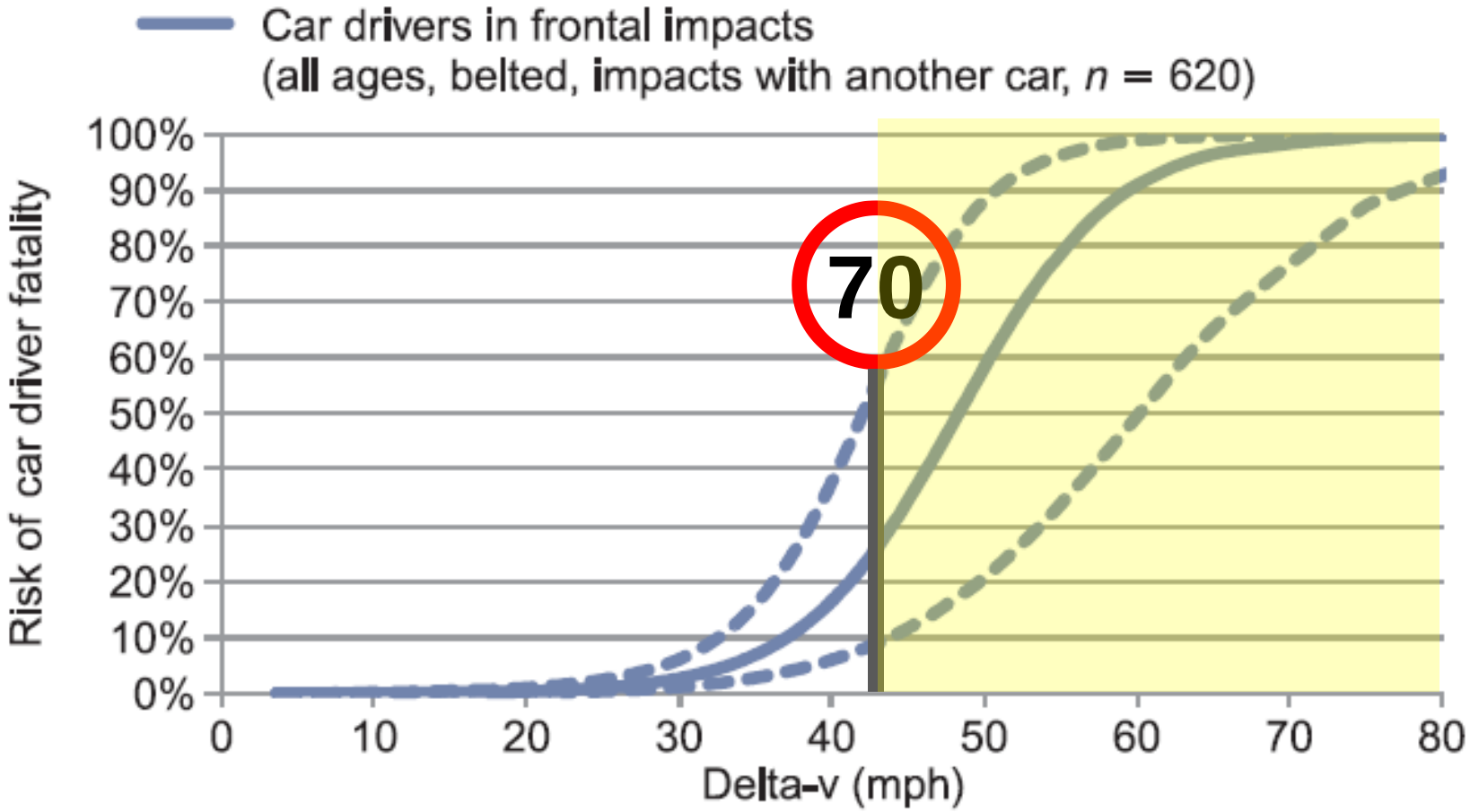

Source: UK DfT, 2010
(dashed lines show 95% confidence interval)

Main types of ISA

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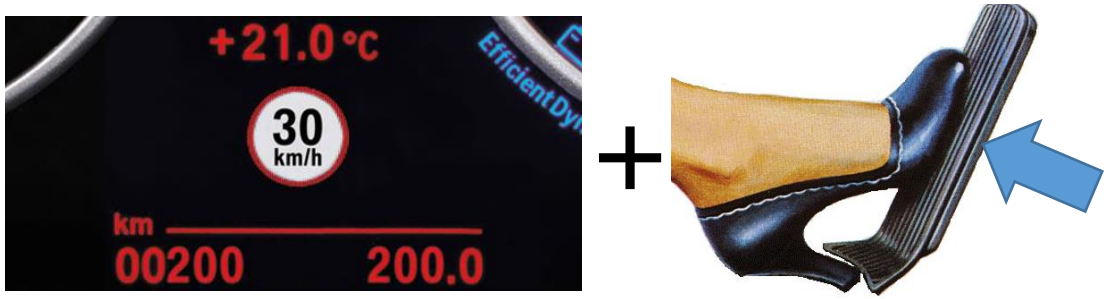
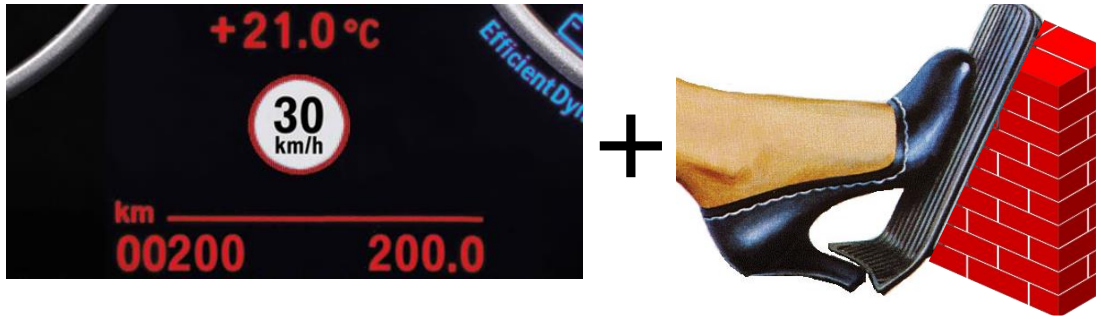
Advisory

Assisting



Non-Overridable



Estimated risk reduction for GB by type of ISA

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ISA Type	Reduction in Injury Crashes	Reduction in Serious Crashes	Reduction in Fatal Crashes
Advisory ISA	−3%	−4%	−5%
Assisting (Overridable) ISA	**−12%**	**−17%**	**−23%**
Non-Overridable ISA	−29%	−40%	−49%

The balance between safety and public acceptance argues for the middle ground.

Why default-on

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Requiring the driver to enable ISA at every ignition on will:

- Cause annoyance to most users
- Encourage those who need it most (speed violators) not to use it
- Almost certainly result in very substantially reduced effectiveness

It’s strange that we would propose to install a safety system that is by default not enabled

Do you want to be protected?

Do we need ISA for all major vehicle categories?

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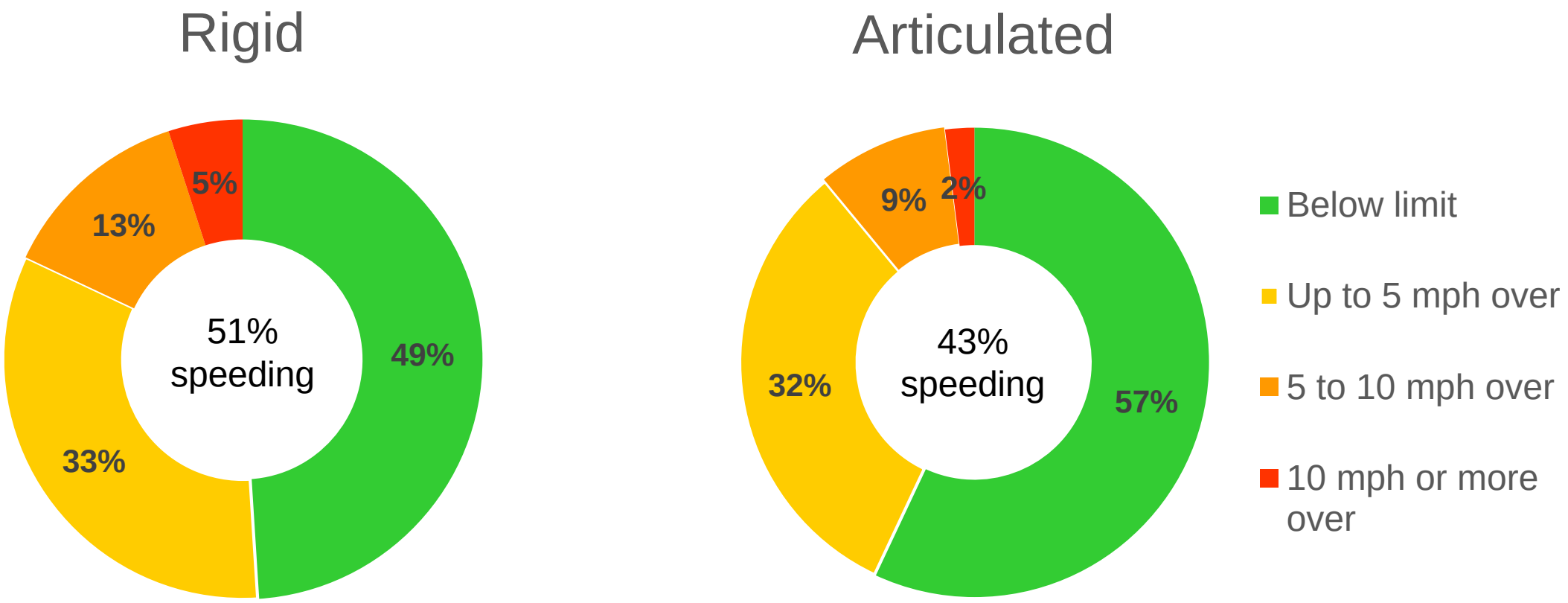
Heavy truck compliance with 30 mph urban speed limit in GB, 2016



Buses: Transport for London's trials of ISA

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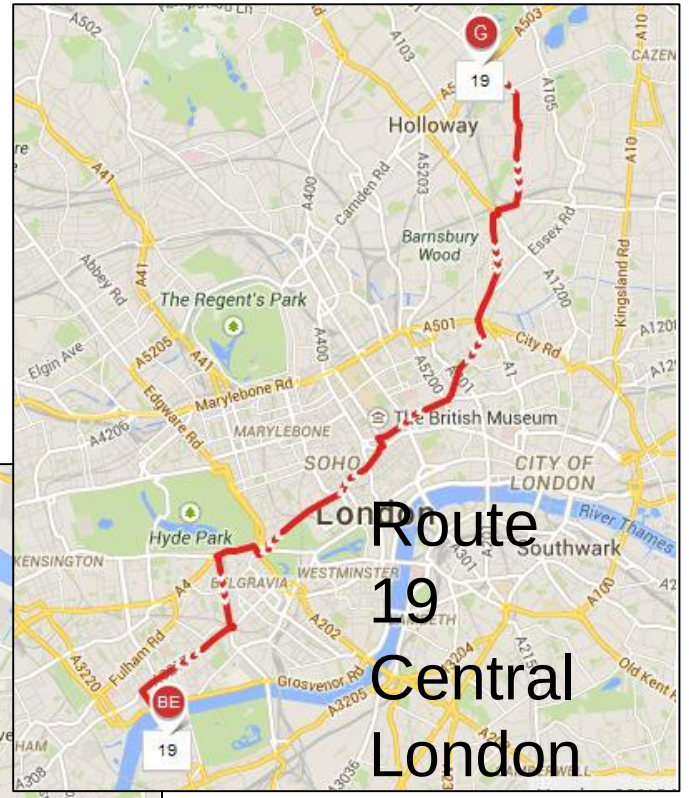
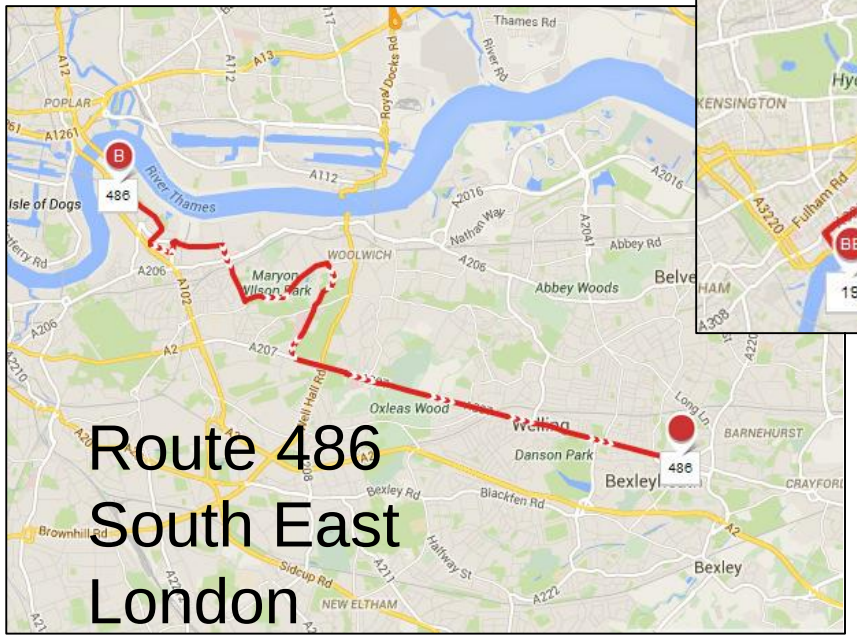
2 routes



Route 19 Central London



Route 486 South East London

Buses

These routes were selected using customer service data, and data analysis of routes with:

- Low bus compliance with speed limits
- The most 20mph (30 km/h) streets
- The least opportunities for cars to overtake buses
- The highest number of collisions with pedestrians and cyclists

ISA equipment

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- The trial used a Non-Overridable ISA based on after-market equipment
- An on-board speed limit map and GPS position was used to prevent buses from accelerating above the speed limit
- Drivers were not able to override the system, except in case of an emergency

Results

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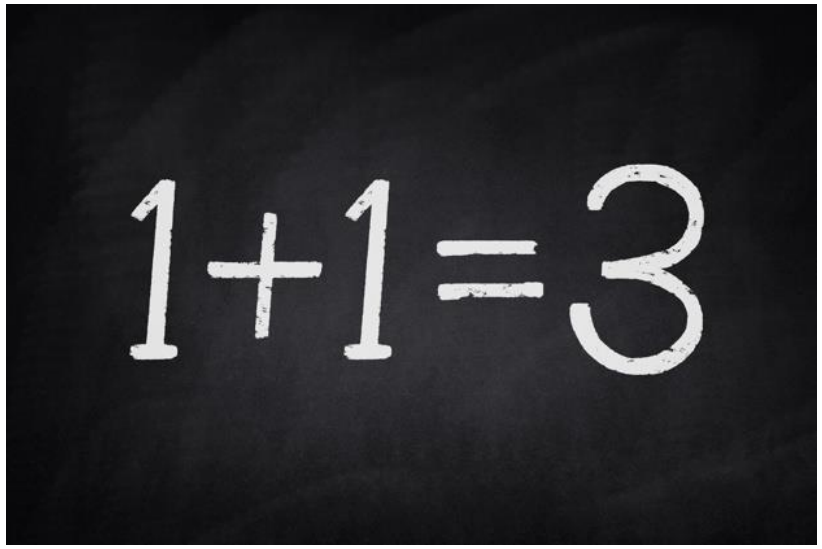
Mainly positive

- Bus speed compliance
  - Successful in improving speed limit compliance
  - Less effective on downhill sections
- The behaviour of vehicles following the buses
  - Can reduce speeds of surrounding traffic
  - No adverse effect on behaviour
- Bus passengers
  - Viewed ISA as good for safety and comfort
- For TfL and bus operators
  - Marginal safety improvement modelled
  - Marginal increase in journey times
  - No significant change in fuel usage
  - Some evidence of improved emissions in 20 mph zones

Next steps

- All new buses in London will have to be fitted with ISA as part of new Bus Safety Standards
- It is expected that, by the end of 2018, over 500 buses will have the technology fitted.
- In future, ISA will be installed on new buses at the point of manufacture
- As TfL buys around 900 buses a year, it is excepted that by 2028 the whole London fleet of 9000 buses will be renewed.

Synergies



With ISA, top speeds are curtailed. So:

- AEB will have more opportunity to prevent crashes (the required deceleration is less)
- When there are crashes, occupant protection systems will have a greater chance of preventing harm

“It’s not technically mature”

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- Assisting ISA is already available on many production vehicles:
  - Ford S-Max and Galaxy
  - New Ford Transit
  - Volvo XC60, XC90, S90, V90 (no link to map)
- The better systems use both a digital map and a camera for information on limit
  - There is a standardised process for transfer of map data from road authorities to the map-makers
- The 2018 VW Touareg even responds to ***upcoming*** limits

“Drivers don’t like it”

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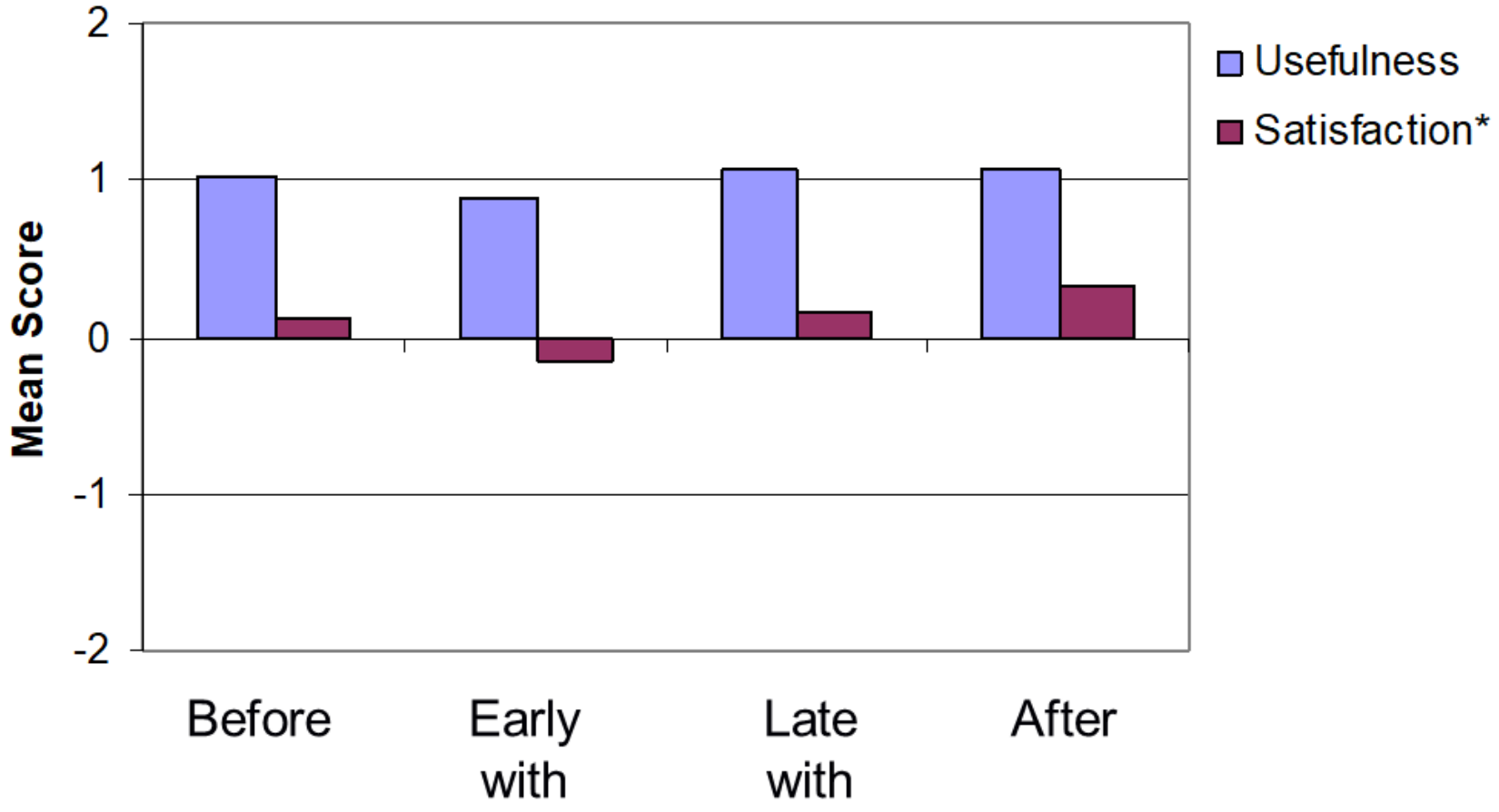
Acceptability of Assisting ISA in ISA-UK trials



Highly Automated vehicles will have to have ISA

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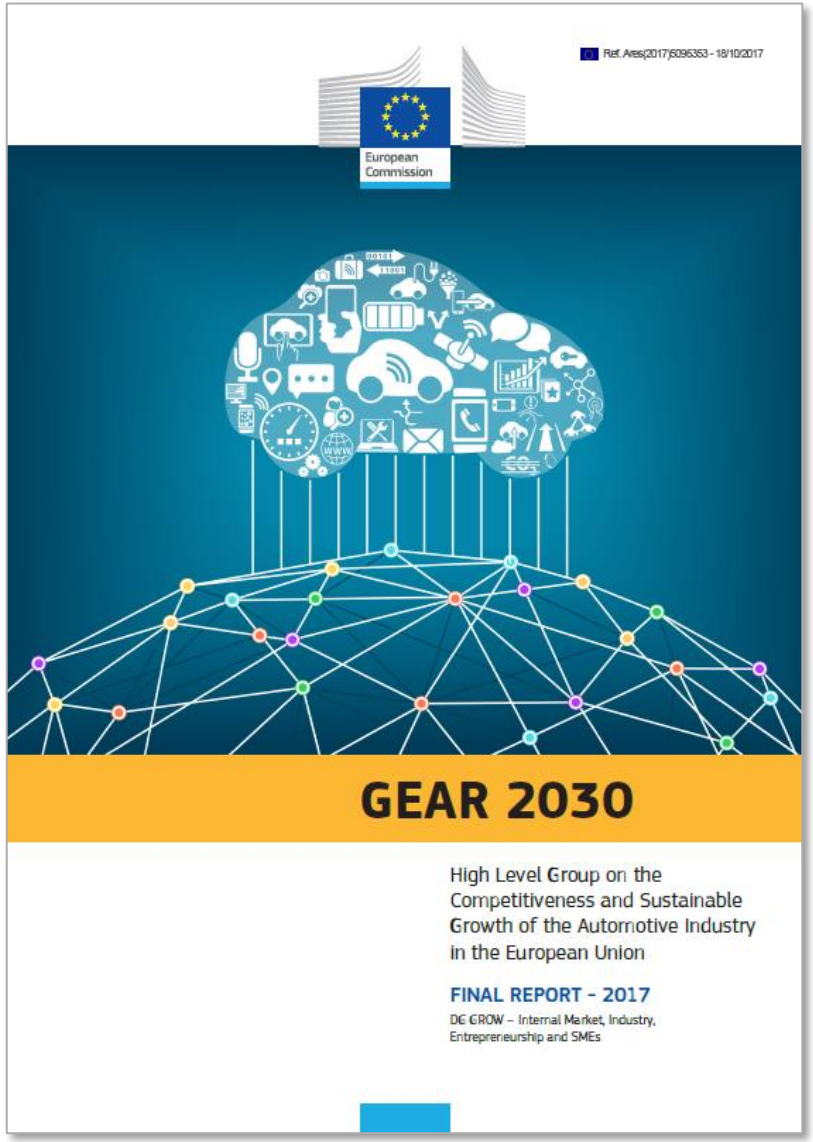

Text of *Annex 3: Guidelines on Human Machine Interface for Automated and Connected vehicles:*

"When operating under vehicle control (vehicle as the driver), vehicles shall obey all relevant regulations, including local regulations. This would include, for example, speed limits (fixed, variable and dynamic), access restrictions, lane restrictions, traffic signal instructions, …"

Conclusions

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- ISA is almost certainly the most effective safety system currently available
- The technology is mature
- We need to implement it in the form of a default on, assisting system
- Acceptability of that system is high
- It should be installed on cars, vans, light trucks, heavy trucks and buses

Thank you for your attention!

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