

Tjugo år med
Euro NCAP

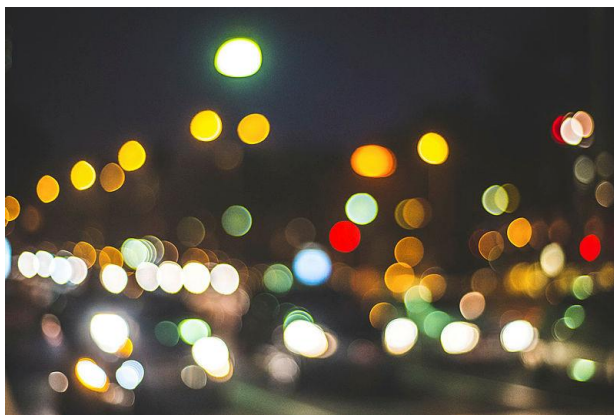


TRAFIKVERKET

Anders Lie

Gordon Moore in 1965 said;
"Change will never be this slow again"

The cars and the car fleet plays an enormous role
in a safe system



The Vision Zero Swedish parliament (1997)

- Long term target is that no one should be killed or receive long term disability

Volvo Cars Vision 2020 (2007)

“Our vision is that by 2020 no-one should be killed or seriously injured in a new Volvo car”



The Vision Zero European Commission (2011)

“By 2050, move close to zero fatalities in road transport. In line with this goal, the EU aims at halving road casualties by 2020. Make sure that the EU is a world leader in safety and security of transport in all modes of transport.”

United Nations (2015)



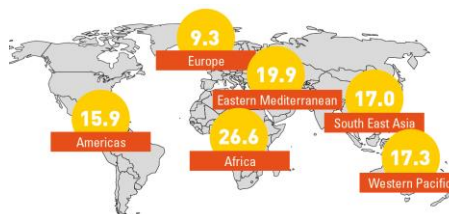
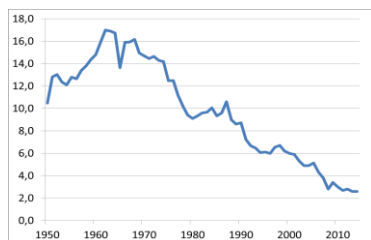
THE GLOBAL GOALS
For Sustainable Development

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Fatalities per 100 000 population 1950-2016

Sweden Max 17 min 2.6



Road traffic fatalities per 100 000 population

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Vision Zero ≠ Zero Fatalities (At least not only) Vision Zero = 5 dimensions (or more?)

1. Ethical platform
2. Vision for many stakeholders
3. Driving force for change
4. Shared responsibility
5. Safety philosophy

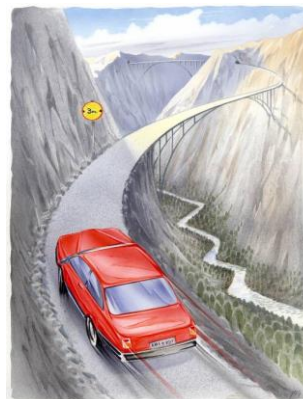


We are blind to speed, not to height

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Vision Zero Safety Philosophy

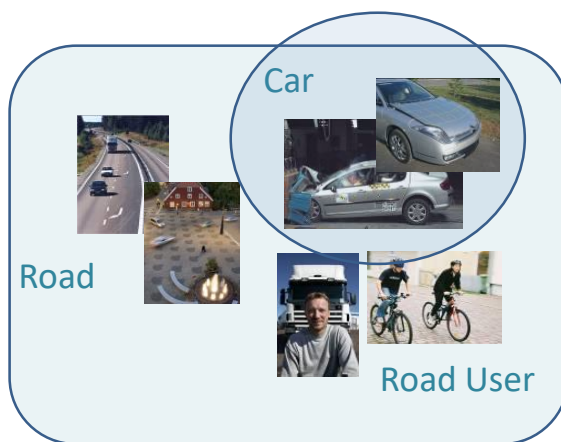
1. Severe injuries not crashes
2. Humans make errors, mistakes and misjudgements
3. Humans have a biomechanical tolerance
4. Energy control is key
5. Eliminations is the target (backcasting)



We are blind to speed, not to height

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The key is the road transport system as a whole



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What led up to Euro NCAP

- Huge vehicle safety differences
- HLDI / US NCAP
- General interest in crash testing (Auto Motor und Sport, Which etc)
- New methods were developed (Offset deformable barrier)



The potential is though even higher, probably in the magnitude of a 50% reduction if the consumers would chose the best car in every weight class. In Sweden, this would reduce the number of fatalities and disabilities by approx. 500 per year.

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Manufacturers self declaration



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Need for assessments (1994 ESV paper)

- - There is a distance between the level of safety stipulated in regulation and the current best practice, and there are important differences between different car models on the market.
- - There is a possibility to develop the passive safety level beyond best practice.
- - There is a need for detecting failures in the passive safety.

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The NCAP process

- Regulation is the basis and threshold
- New Car Assessment Programmes promote car better than regulation demands
- NCAP program can be dynamic and guide industry to important areas
- Different manufacturers have different approaches

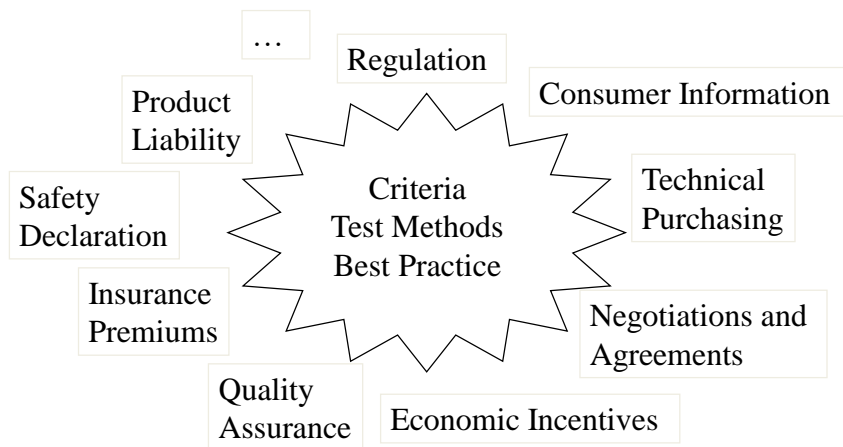
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The NCAP process

- Timing is crucial
- Open and transparent planning
- Give credit more than blame and shame
- Be inclusive
- Vehicle industry is global, they know how


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Results can be used in many ways



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United Nations A/RES/66/260

 **General Assembly** Distr.: General
23 May 2012

Sixty-sixth session
Agenda item 12

Resolution adopted by the General Assembly on 19 April 2012

[without reference to a Main Committee (A/66/L.43 and Add.1)]

66/260. Improving global road safety

- 7. - *Encourages* the implementation of new car assessment programmes in all regions of the world in order to improve availability of consumer information about the safety performance of motor vehicles;

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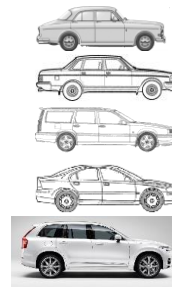
Is Sweden different?

- Citizens / consumers in focus
- Two authorities, one more focused on regulation, one focussing Euro NCAP
- Safety oriented country and industry

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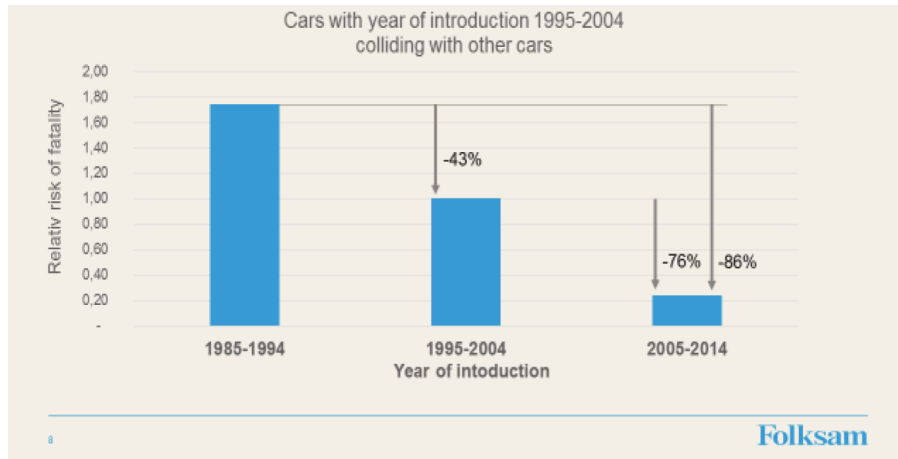
Where does the change come from

- Focus and knowledge in industry
- NCAP programs
- Stability control ESC
- Seat belt reminders
- Lane departure warning

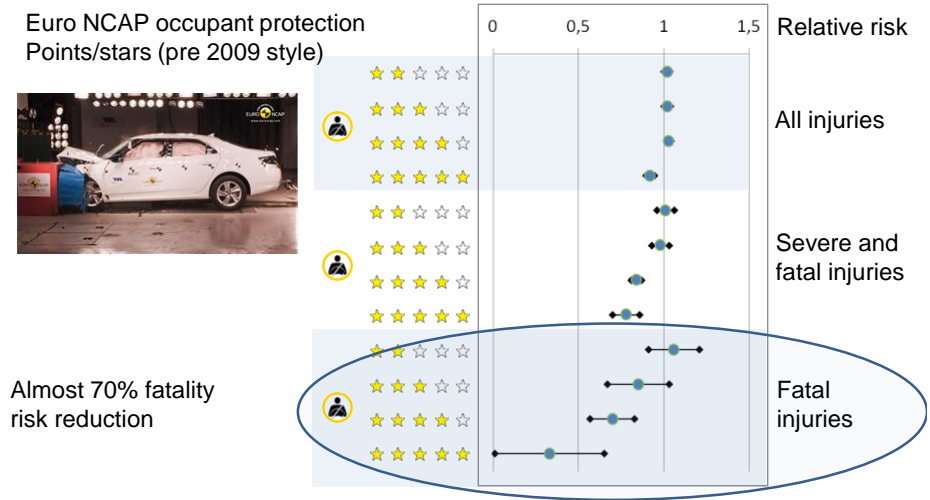


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Crashworthiness - fatality risk for car occupants



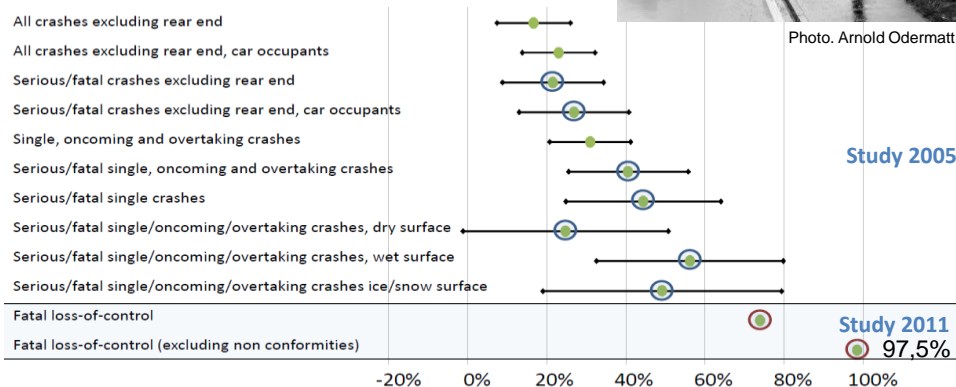
Effects of high Euro NCAP score (study 2010)



Effects of ESC, two Swedish studies

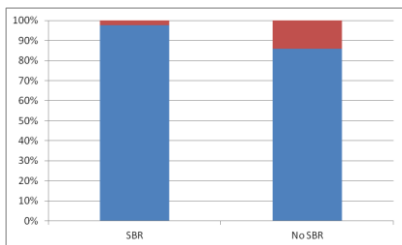


Photo. Arnold Odermatt

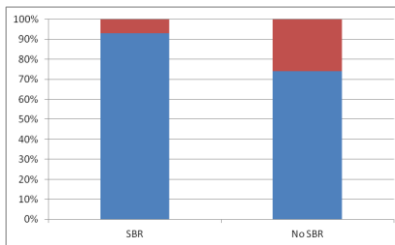


The effect of Seat Belt Reminders

Road side observations, Europe



Fatal crashes, Sweden

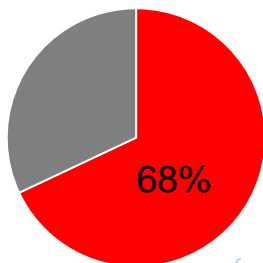


Increase of seat belt use
82,2 +/- 8,6%



The effect of Lane Departure Warning

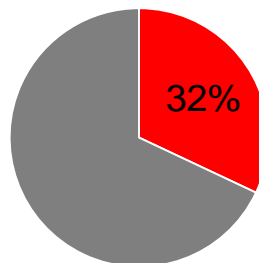
Without LDW



Head-on and single

Rear-end

With LDW



→ -53%

(70-120 km/h no snow or ice)



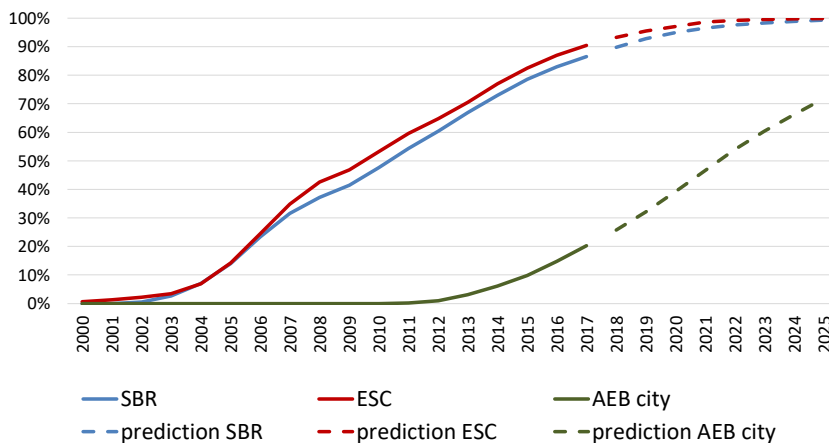
Traffic Injury Prevention

The effectiveness of lane departure warning systems – a reduction in real-world passenger car injury crashes

Simon Sternlund, Johan Strandroth, Matteo Rizzi, Anders Lie & Claes Tingvall

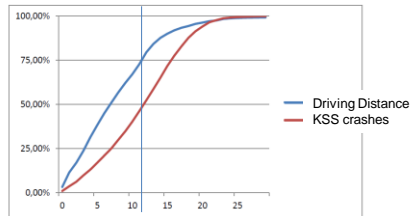
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Proportion of car mileage driven on Swedish roads with ESC, SBR and AEB city 2000-2025



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Euro NCAP, exchange of fleet



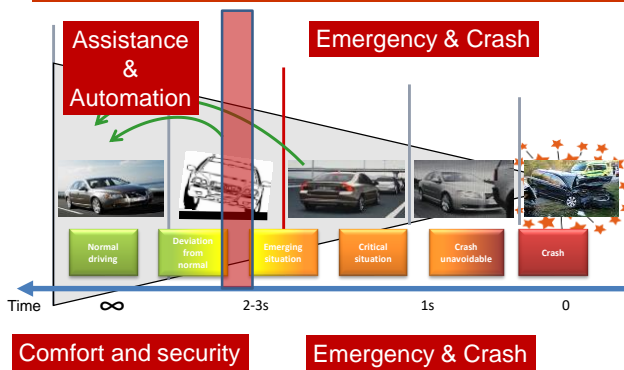
Accumulated Driving Distance and number of KSS crashes
KSS=Killed and Severely Injured

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Separate "assisted and automated driving" and emergency functions



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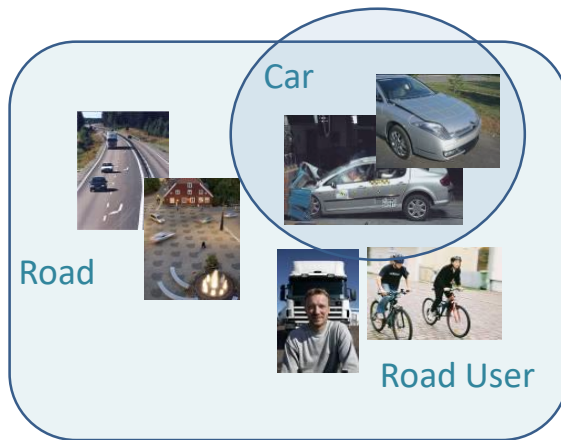
Clear results in EU

- It is estimated that 2/3 of the reduction in road fatalities comes from replacement of the car fleet
- Better results than reduction of heart attacks during the same period

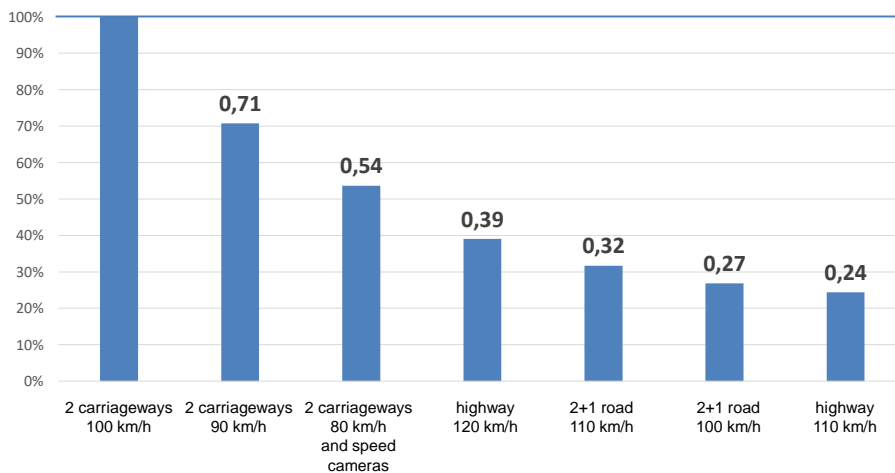


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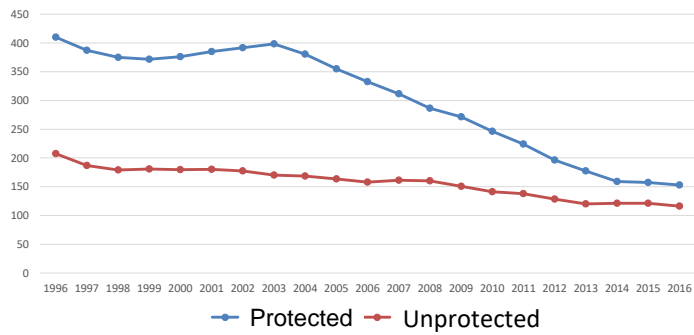
The key is the road transport system as a whole



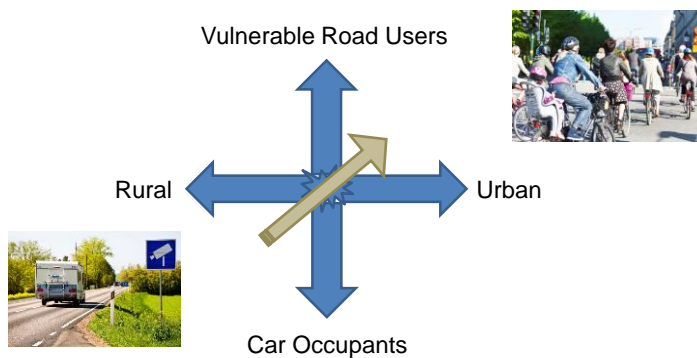
Relative fatal and serious injury-ratio for car occupants on different road types



Fatalities among protected and unprotected road users (Sweden)



There is a shift in focus going on





New Car Assessment Programs

- Puts safety on the market, over and beyond regulation
- Promotes best practice
- Focuses vehicle industry
- Gives credit to best performance and discourage poor performance
- Works on a global market



New Car Assessment in Europe



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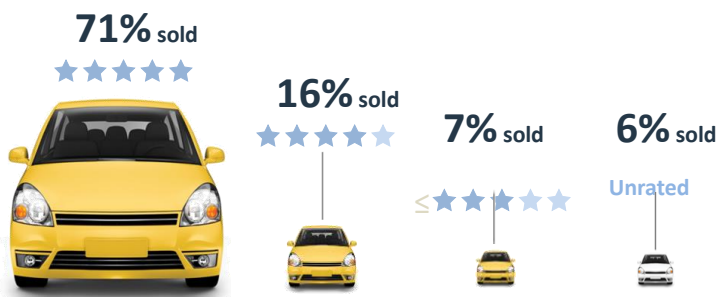
About Euro NCAP

- Established in 1997
- 12 members and 8 test facilities across Europe
- Star rating promotes best practice in safety design, robust performance & standard fit



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Rating Coverage

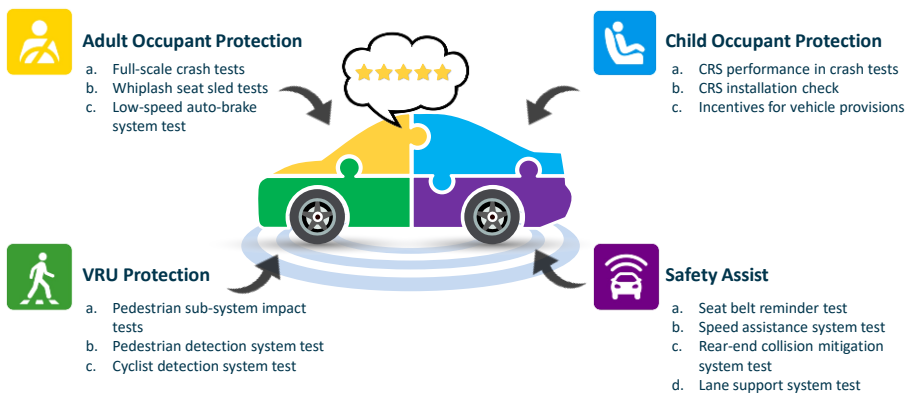


*Passenger Car & SUV Sales, 2017 Q1-Q3; 11,826,695 units

2017. Left-Lane.com



Integrated Approach



Euro NCAP

Promoting life-saving technology, standard fitment and robust performance

Overall rating ★★☆☆☆

4 areas



17 tests



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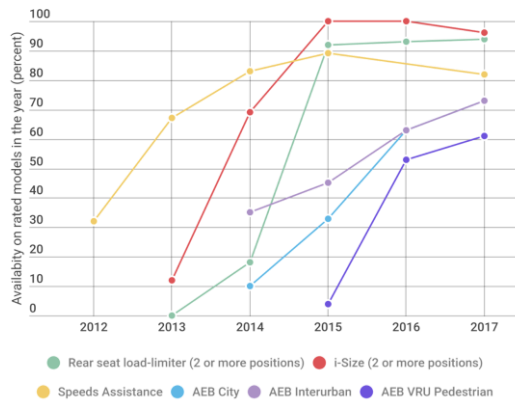
Delivered Roadmap Milestones



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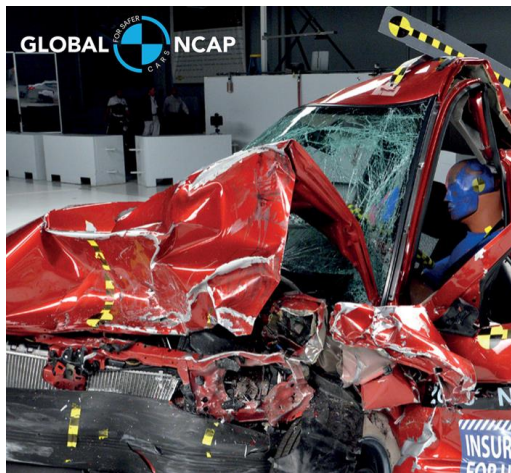
Market Response - Standard Fit of Safety Systems



NCAP's around the world

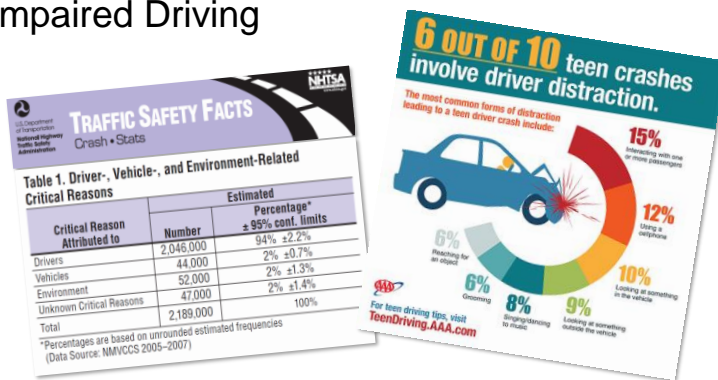


Crash test

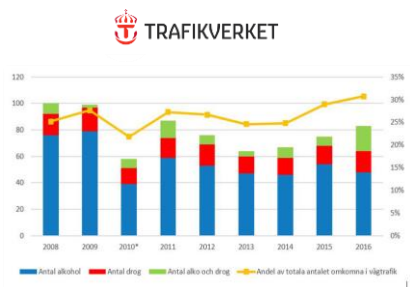


https://www.youtube.com/watch?v=85OysZ_4lp0

Impaired Driving



Impaired Driving 2



A driver under fatigue has a high accident risk. Single car crashes are the most common caused by fatigue. International research indicates that up to 20% of all crashes are caused by fatigue.

Educate – Enforce – Care – Safe Road– Better Car





Euro NCAP, has initiated a working group around Occupant Status Monitoring

Impaired driving – A driver who is disconnected from the driving task or not in a physical state that is sufficient for safe driving

- *Fatigue* – State of the driver where he/she is not awake enough to properly perform the driving task
- *Distraction* – Anything (e.g. secondary tasks) that avoid the driver to focus on the primary task of driving/controlling the vehicle
- *DUI* – *Driving Under the Influence* of alcohol or drugs
- *Sudden sickness* – An instant and unexpected illness wherein the driver is not able to perform his driving task

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Euro NCAP, detection

- Fatigue
- Alcohol
- Distraction



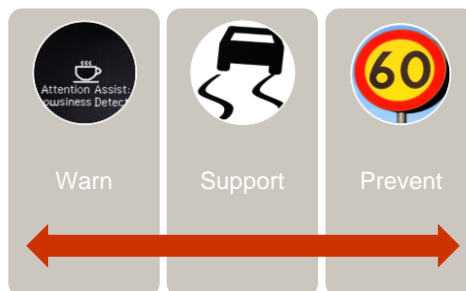
- Drugs and medicine?
- Sudden sickness?
- Driver attention (automated driving)?



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Euro NCAP, what can the car do?

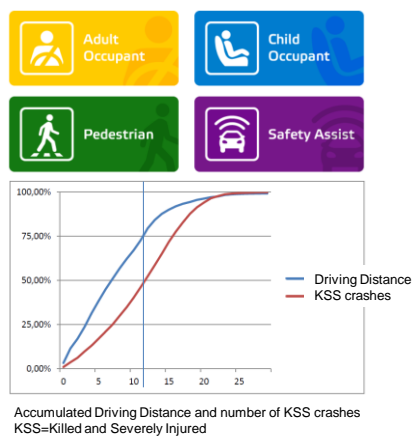
- Warn
- Activate safety systems,
- Increase sensitivity (ESC, AEB, LDW),
- Reduce speed (Limp home mode)
 - How can the driver show fitness to drive?



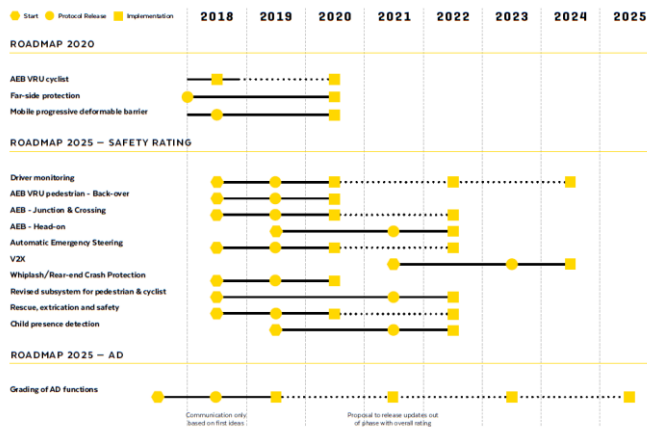
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Euro NCAP, challenges

- Shifting technical maturity, fatigue most developed
- The relation between detection quality and "action"
- Integration into Euro NCAP's rating system
- It takes time to exchange the fleet
- Never an alternative to enforcement or alcohol starter interlocks

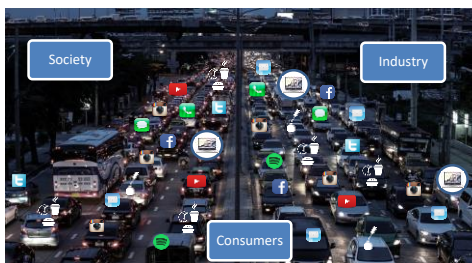


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Research challenges

- **Detection**
 - Direct by cameras
 - Indirect by steering/positioning etc.
 - Combined systems
- Combined reasons for impairment
- **Effect analysis**



- **Assisted/ automated driving**
 - The driver is given permission to be outside the driving loop

Summary

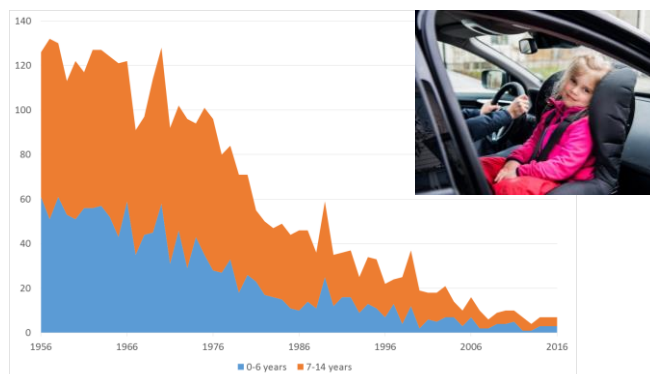
Vision Zero and safe vehicles?

- Very important, but we need the road infrastructure too
- With full implementation of current safety strategies for a safe road transport system we can get close to zero car fatalities by 2050
- NCAP programs are very successful in putting vehicle safety on the market (But regulation is still fundamental)
- Development is extremely rapid
- More focus on vulnerable road users
- (Never buy old vehicle models)



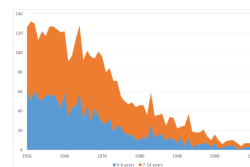
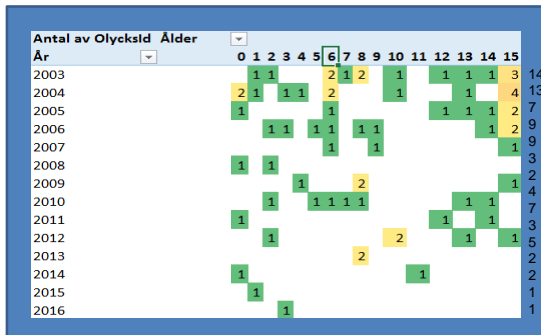
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Children killed in traffic 1956-2016



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Children killed in cars 2003-2016



Thank you!



Swedish Transport Administration

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