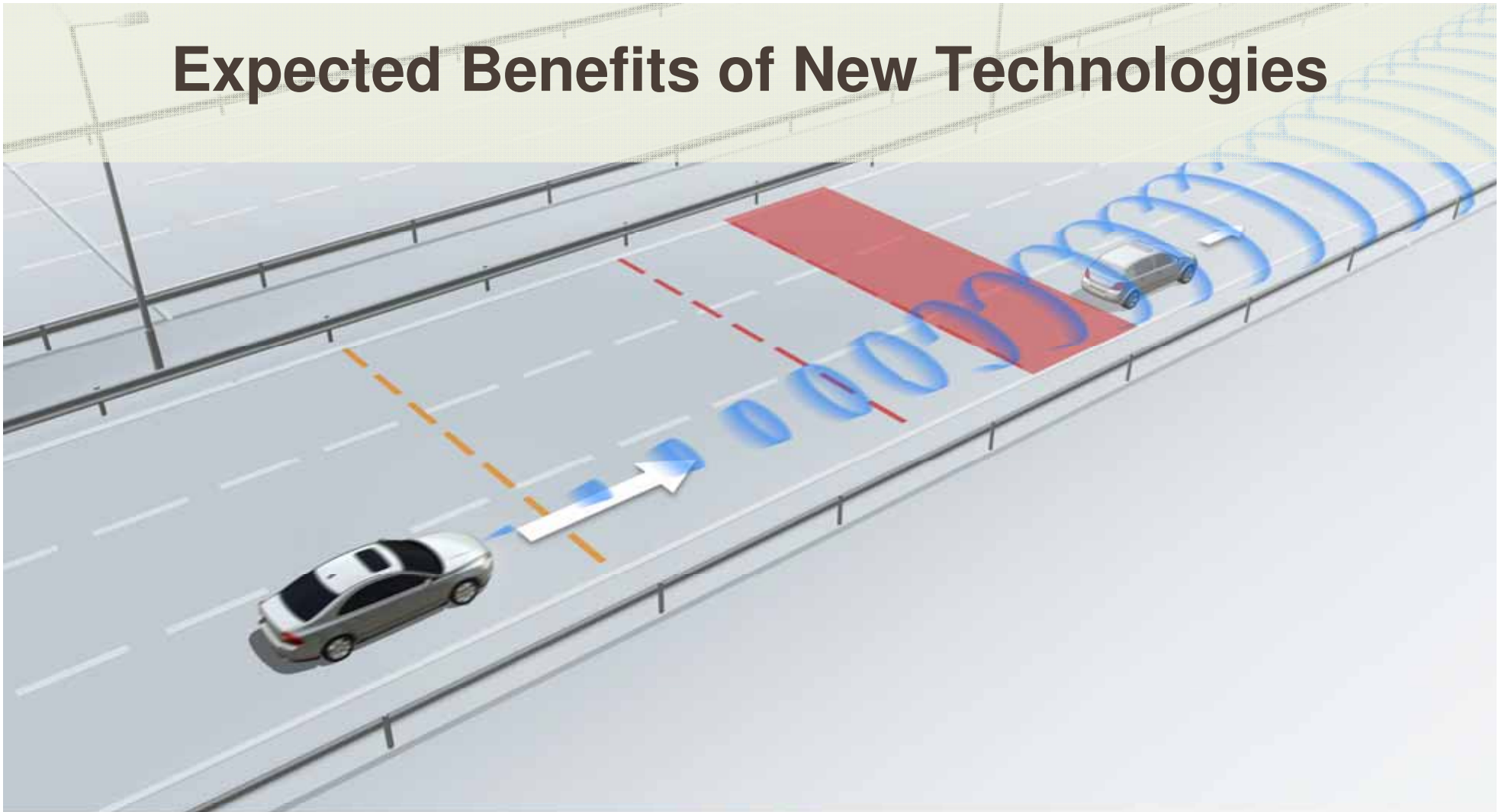


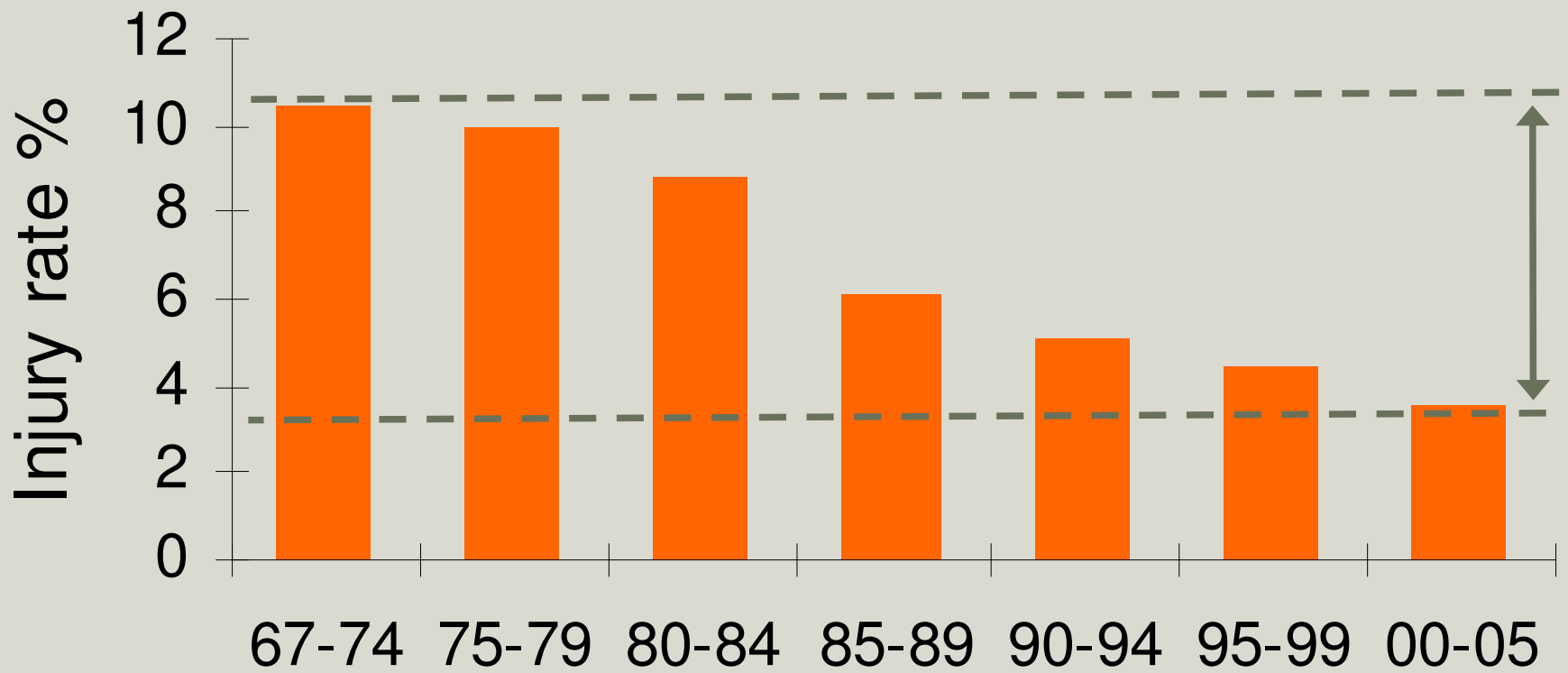
# Expected Benefits of New Technologies



**Anders Eugensson, Volvo Car Corporation**




# Protective Safety Achievements 1967-2005



Model Year

MAIS 2+ injury rate by model year  
25,449 belted drivers in all crash types



An aerial, top-down view of a multi-lane road curving through a landscape. The road is dark grey with white dashed lane markings. Two cars are visible on the road, each surrounded by a green circular sensor wave emanating from it, suggesting advanced driver assistance or autonomous driving technology. The background is a stylized, low-poly landscape in shades of blue and grey. The overall image has a futuristic, high-tech aesthetic.

Our Vision is that no one is killed or  
injured in a Volvo in the year 2020

## ***Volvo Vision 2020***

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Anders Eugensson, Volvo Car Corporation  
Date: 2008-10-13

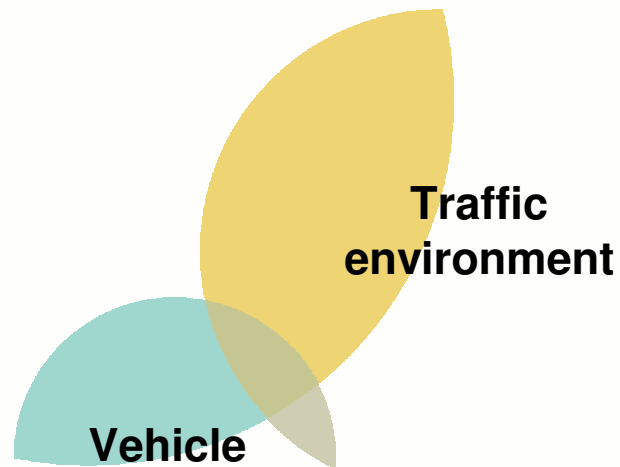


# What Causes Accidents?

**Human error (up to 93%)**

Driver distraction  
Driver drowsiness  
DWI (alcohol and drugs)  
Driver capabilities

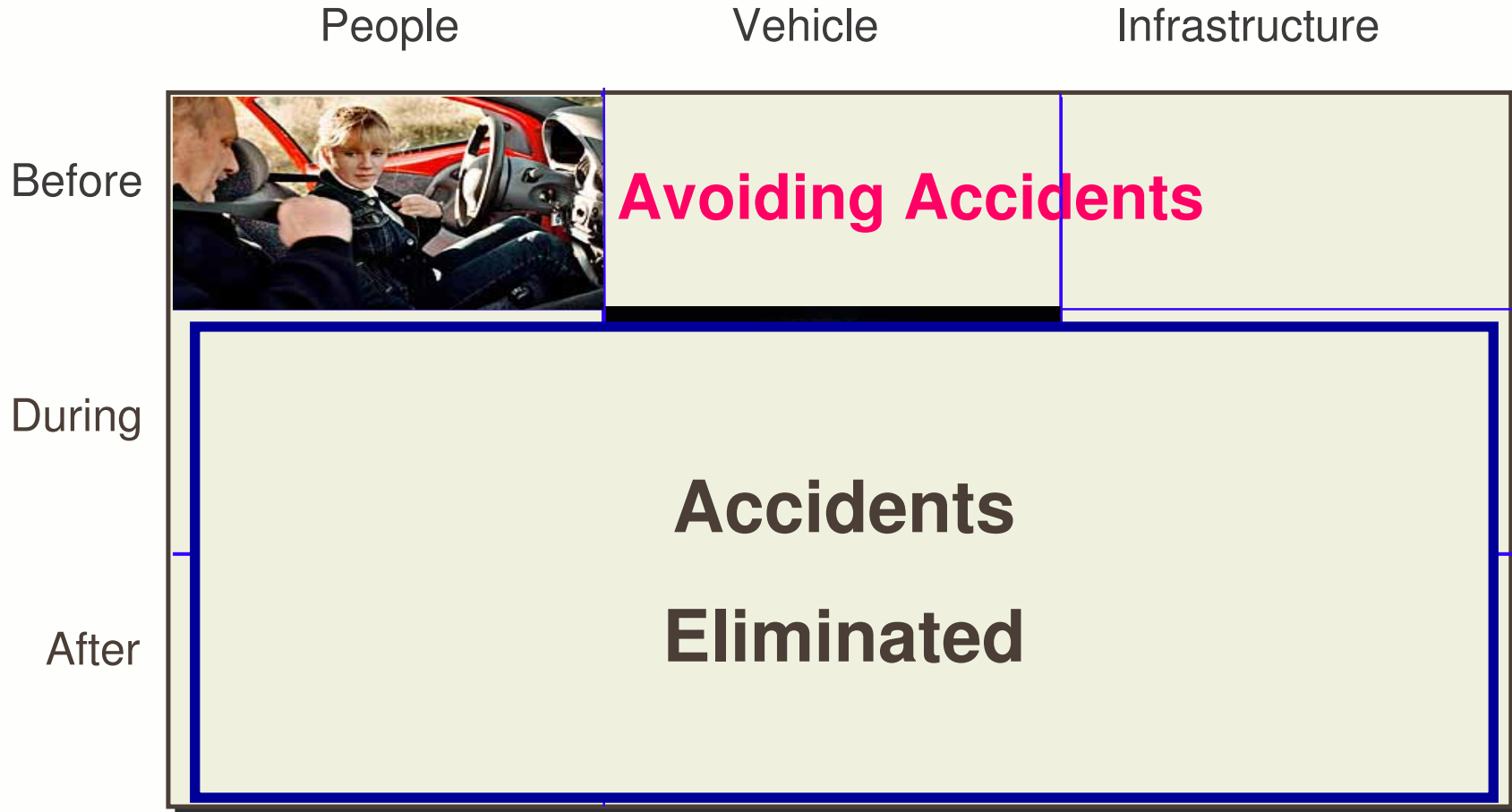
***'the 4 D's'***



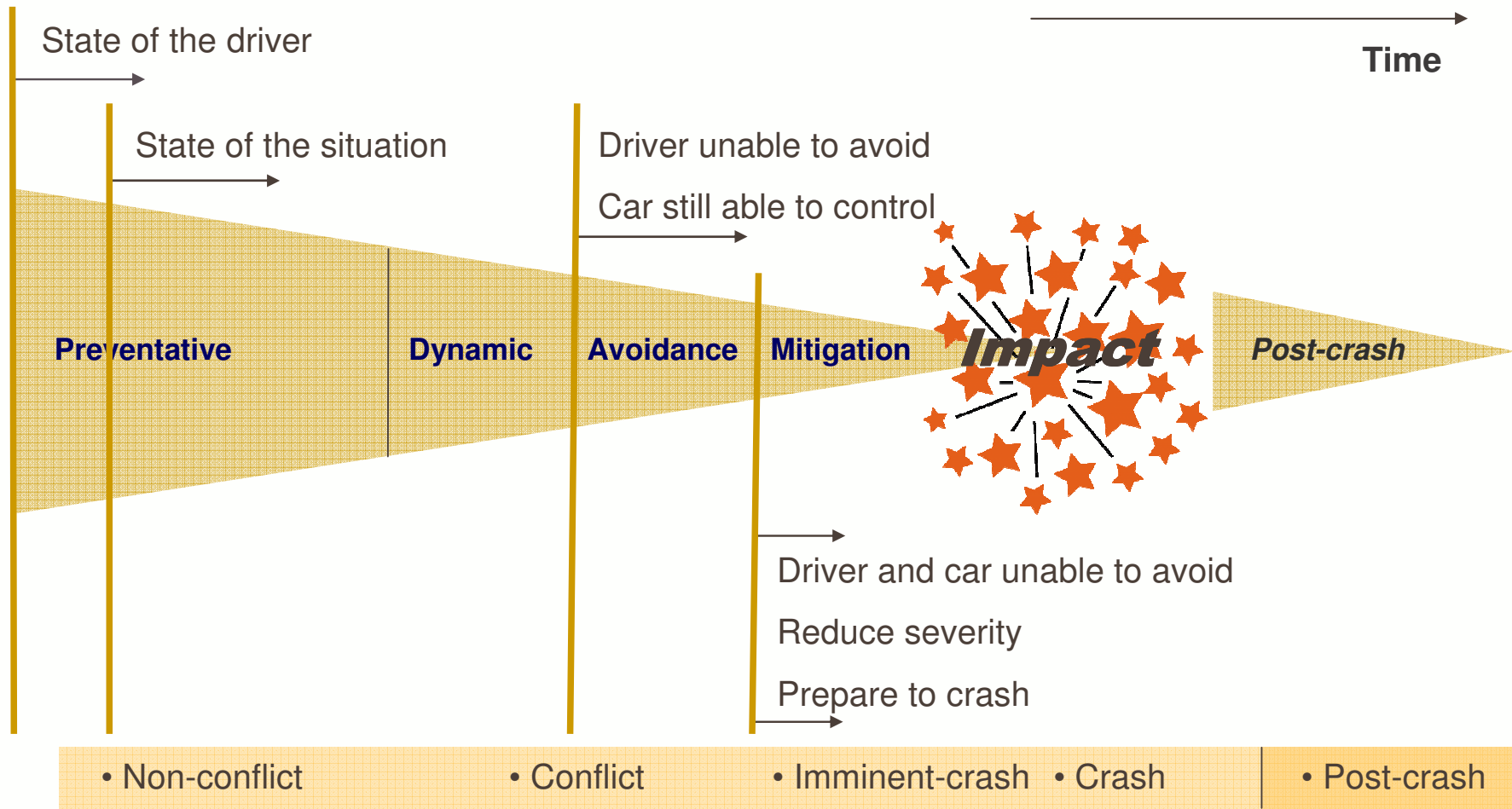
Source: Virginia Transportation Institute



# The Long-Term Target – Related to the Haddon Matrix



# The Holistic View of Safety

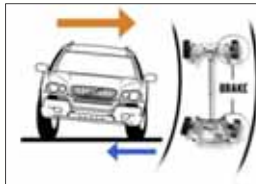
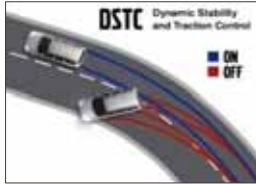


# Technology as Countermeasure in the Holistic Perspective

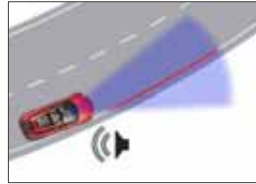
BLIS  
Driver Alert  
Alcoguard



Forward Collision Warning  
DSTC  
RSC



City Safety  
Emergency Lane Assist  
Collision Mitigation



Safety Cage  
Inflatable Curtain  
Whiplash Prevention System



Volvo  
On Call



Preventative

Dynamic

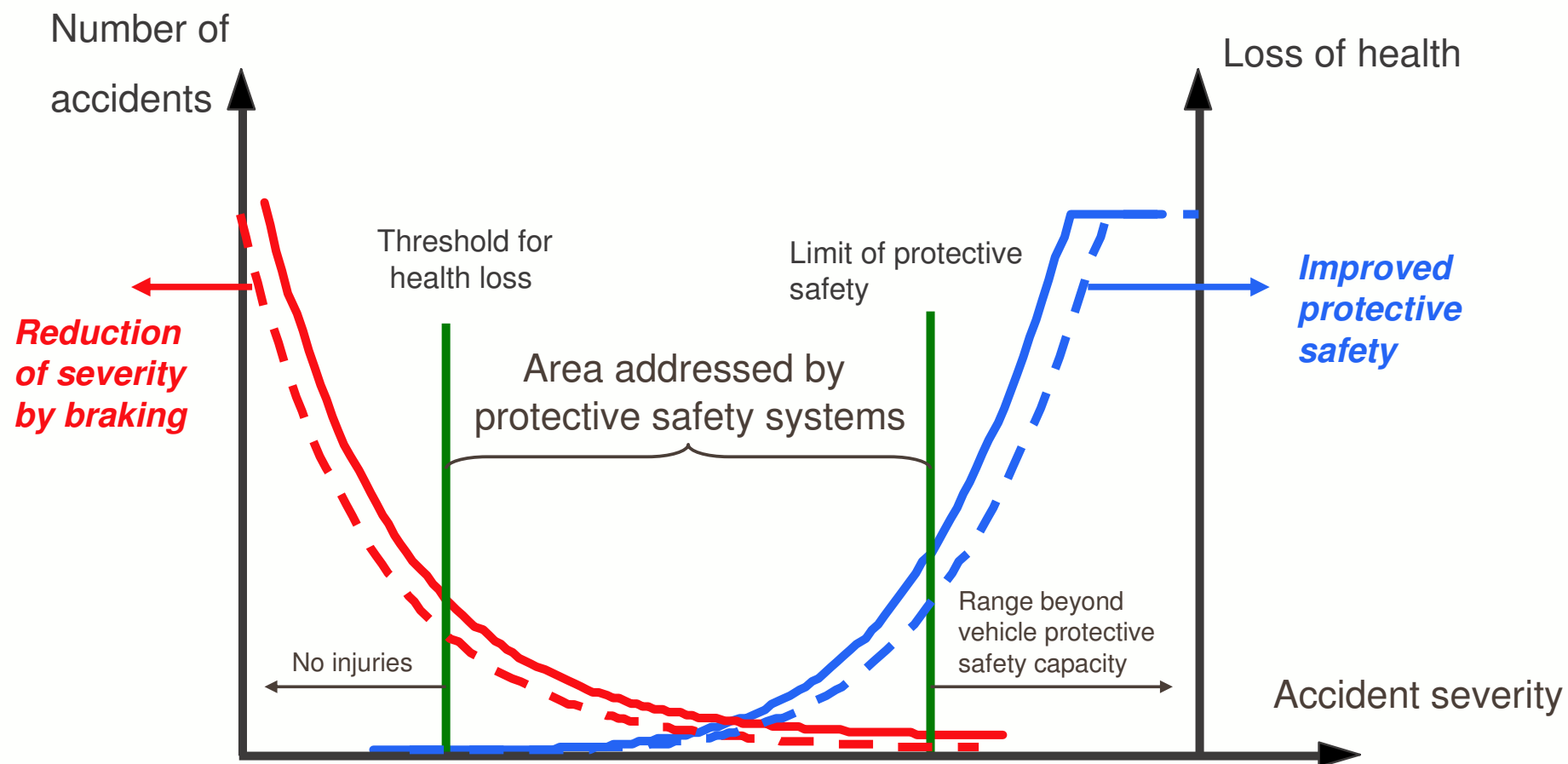
Avoidance/Mitigation



Post-crash



# Integrated Safety – Combining Protective and Preventative Safety

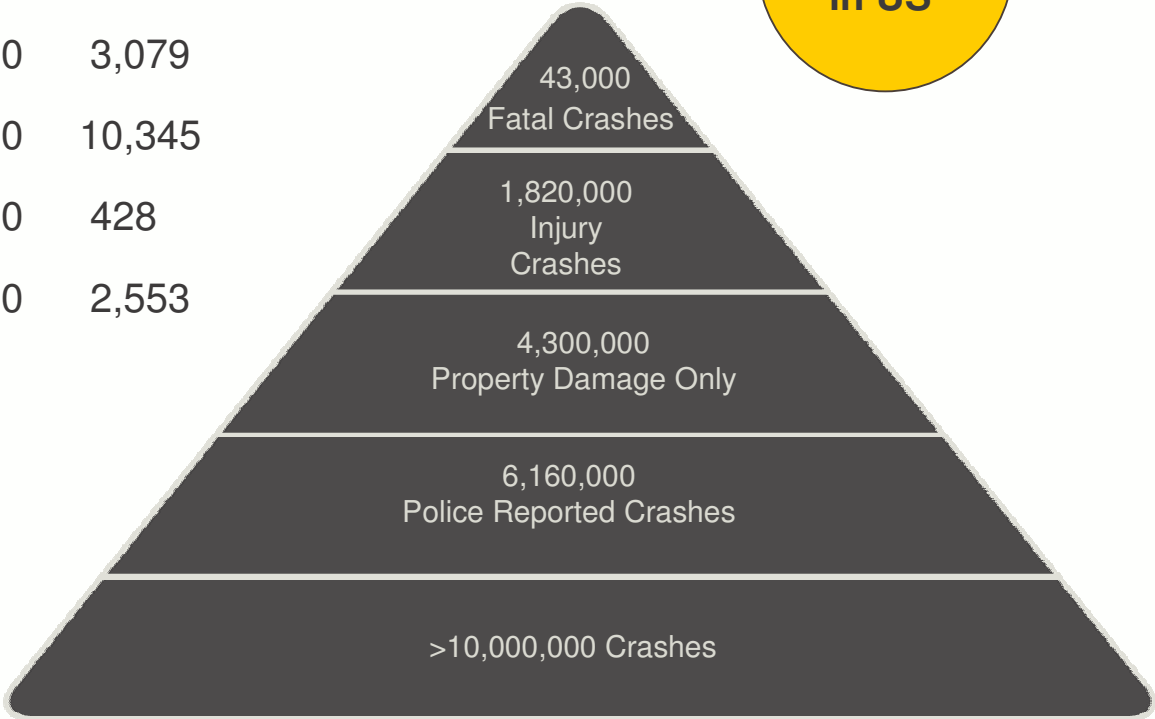


# Annual Crashes Relevant to Vehicle Technologies 2002-06 (US)

<i>Technology</i>	<i>all</i>	<i>fatal</i>
• <b>Forward Collision Warning with Automatic Braking</b>	2,268,000	7,166
• <b>Emergency Brake Assist</b>	417,000	3,079
• <b>Lane Departure Warning</b>	483,000	10,345
• <b>Blind Spot Detection</b>	457,000	428
• <b>Adaptive Headlights</b>	143,000	2,553

Source: Insurance Institute for Highway Safety (IIHS)

**43,000  
Fatalities  
in US**

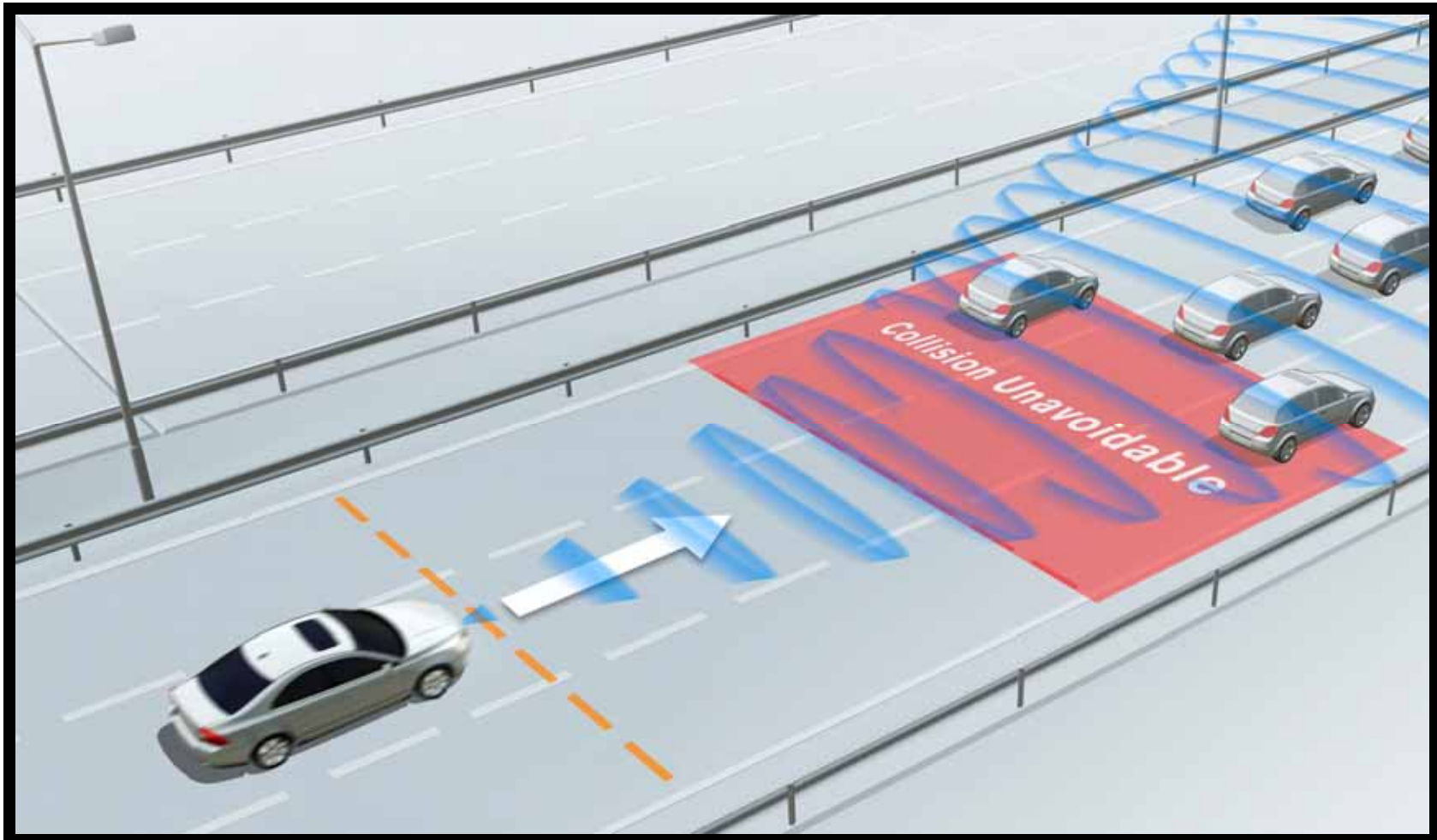


**and**

- **Alcohol Interlocks: 40% of all fatalities**



## Avoidance / Mitigation: Collision Warning with Autobrake



## Mitigation: City Safety



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# Lane Departure Warning



Lane Departure Warning

# System Addressing Drowsiness



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# System Addressing Drunk Driving



## Volvo Alcotest System



# Future - Collision Warning with Full Auto Brake

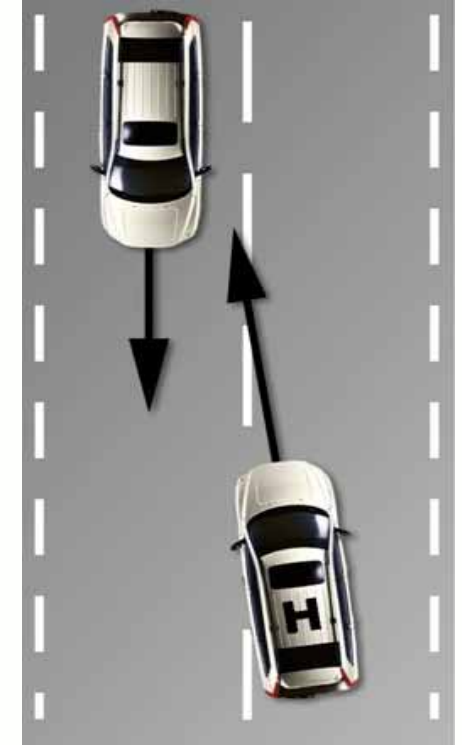


# Future - Collision Avoidance by Auto Steering

- Helps the driver prevent collisions with oncoming vehicles.
- Intervenes with steering to get back into safe lane when collision risk is detected.
- The driver can over-rule the intervention by steering resolutely.



no action



Intervention

# Development challenges

- Low occurrence of false alarms
- Low risk of missed alarms
- Minimal “risk compensation”
- Intuitive driver interface
- Robust to variation in driving style and environment
- High efficiency in real life



# Present Status of Safety Systems



# The Future – Volvo Vision 2020

***Our Vision is that no one is killed or injured in a Volvo in the year 2020***

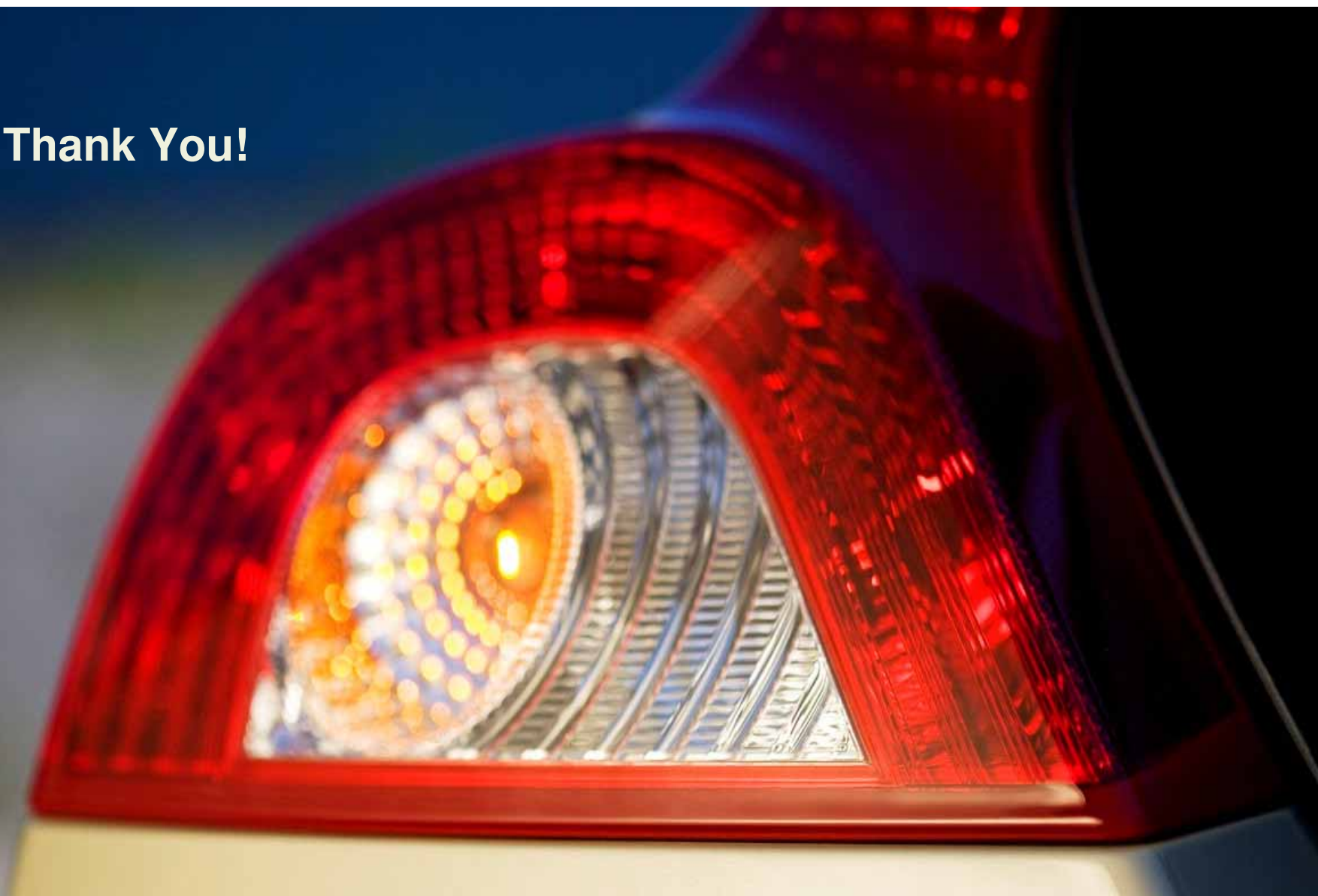
New technologies have taken traffic safety one step further ***but...***

- Can we find technical solutions quickly enough?
  - Only 12 years of development/ research available
  - Only two generations of products to achieve target
- Will we have sufficient know-how?
  - We have only just commenced the learning curve for preventative safety systems
  - There is still a development need in protective safety systems

- ***We cannot solve this on our own – we must cooperate with other partners***
- ***Incentives for increased penetration of preventative systems needed***
- ***Consumers need to be aware of potentials with preventative safety systems***



**Thank You!**



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