



# Cooperative Safety

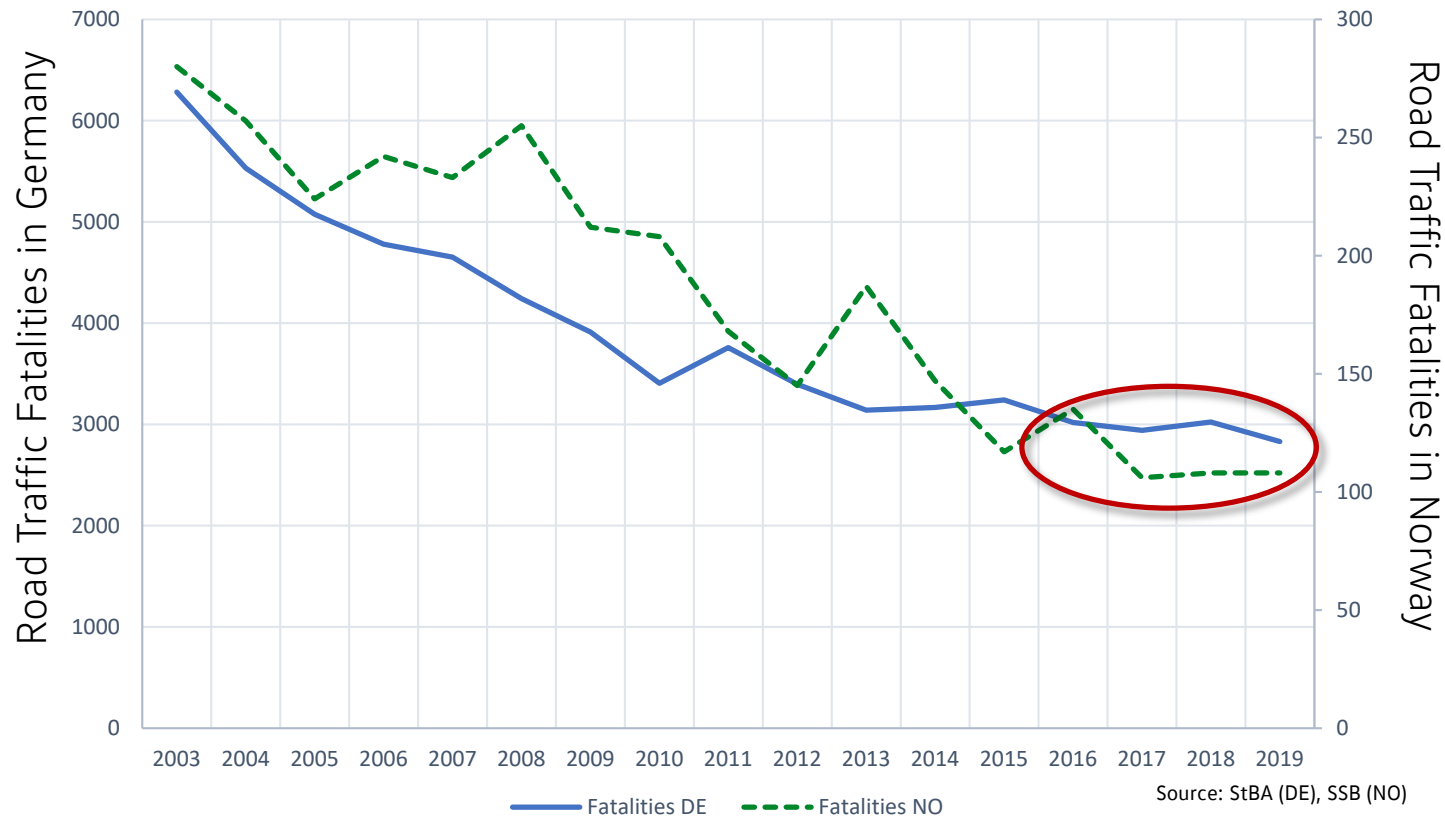
## A Vehicle Manufacturer's Perspective

Thomas Biehle, Volkswagen

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# On the Way to Vision Zero



Accident statistics seem to stagnate over the last years

Special attention for vulnerable road users necessary

New safety systems are necessary on the way to vision zero

## influencing variable humans

- increase traffic density
- distraction by smartphone
- missing driving experience
- demographic transition
- E-Bikes / Pedelecs
- E-Scooter

# Cooperative Safety

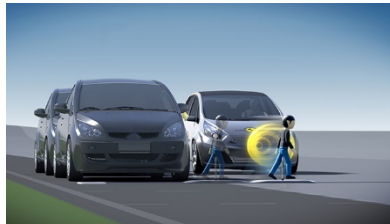
## A New Era of Safety Systems

today



### Cooperative Safety

+ Active cooperation due to Car2X between road users like cars, road infrastructure, pedestrians ...



### Active Safety Systems

+ Avoiding accidents in critical situations



### Passive Safety Systems

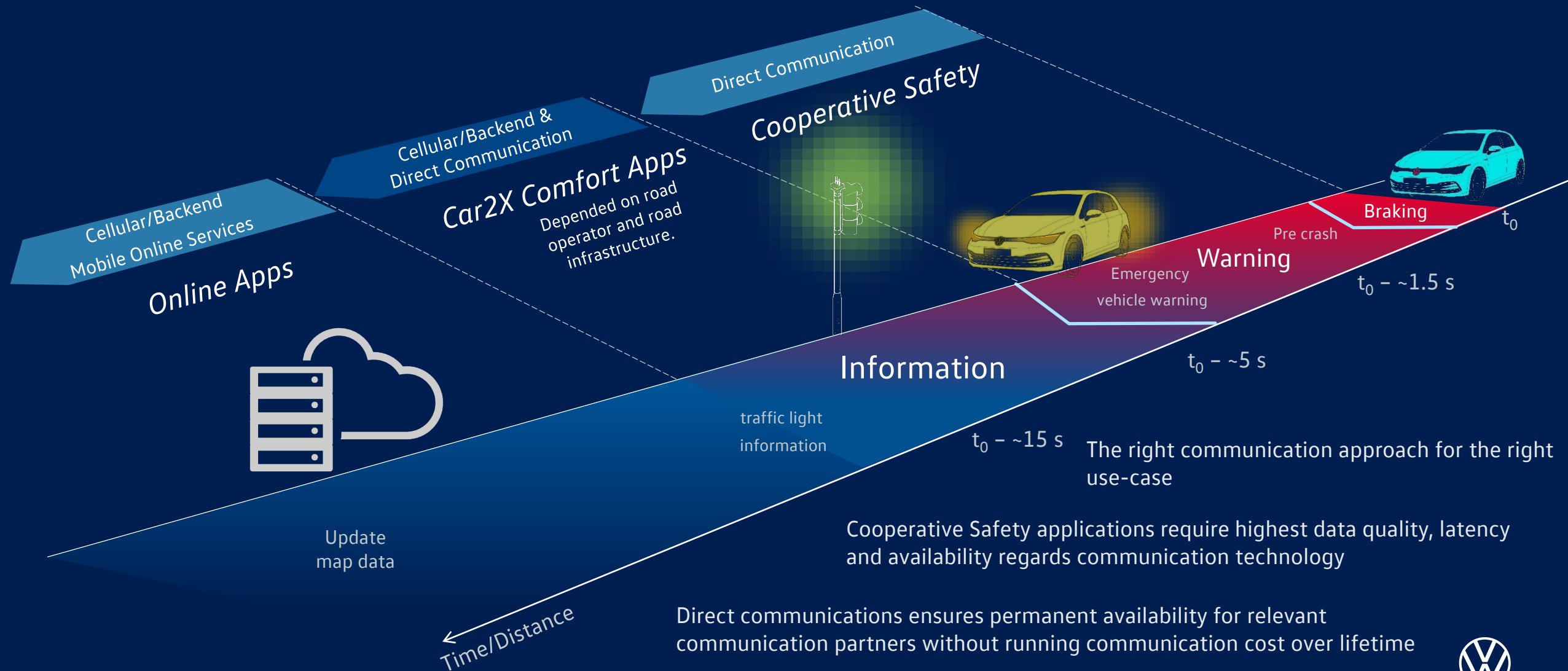
Reducing the severity of accidents

Time



# Car2X

## Cooperative Safety



# Vision for cooperative traffic safety

## Expected benefits of Car2X Cooperative Safety (direct communication)

### Extension of the existing sensor set

Largely resistant against weather conditions  
and occlusions

Allows for a „look around the corner“  
(360° sensing)

Collective Perception  
(Seeing through the eyes of others)

Cooperative Maneuver Planning

**Enable cooperative driving with  
integration of the road infrastructure**

### High data quality and quantity

From passive sensing to active  
transmission

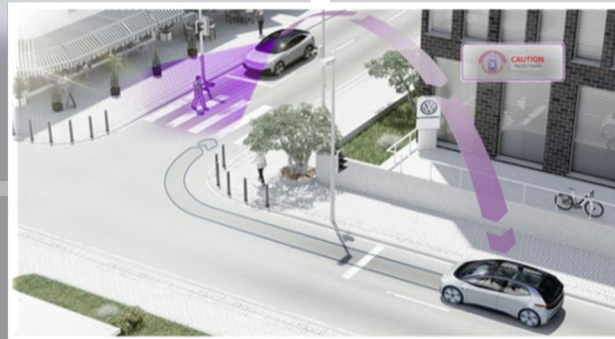
Learn from experience/detections of  
other traffic participants

Additional attributes of objects (e.g. vehicle  
weight and type or traffic light status)

Communication of planned  
maneuvers and trajectories

Knowing how conditions will change in the near  
future (traffic light status)

**Providing forecasts**



# Car2X Features based on ETSI ITS-G5

## Local Hazard Applications (EU market)



Car2X as standard in

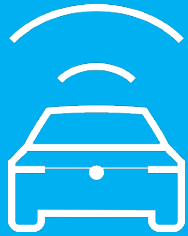


...

-  Stationary Vehicle
-  Broken-Down Vehicle
-  Accident
-  Traffic jam – dangerous end of queue
-  Safety System Active
-  Work Zone
-  Stationary Emergency Vehicle
-  Dynamic Emergency Vehicle



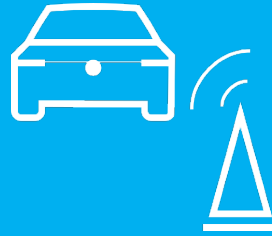
# No Reason To Wait To Enable Cooperative Road Safety



## Vehicle & ITS Manufacturers

Investment in deployment of  
ITS-G5 in Europe

Make Cooperative Safety  
Applications today available to  
large customer base



## Infrastructure & Road Operators

Investment in connected and  
intelligent road infrastructure

Infrastructure-based  
Cooperative Safety crucial on  
way to Vision-Zero



## Governments & European Commission

Backup investments by  
providing stable legal and  
jurisdictional environment

European Trust Model  
(European Certificate Trust List)





Together.  
European Road Safety.

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