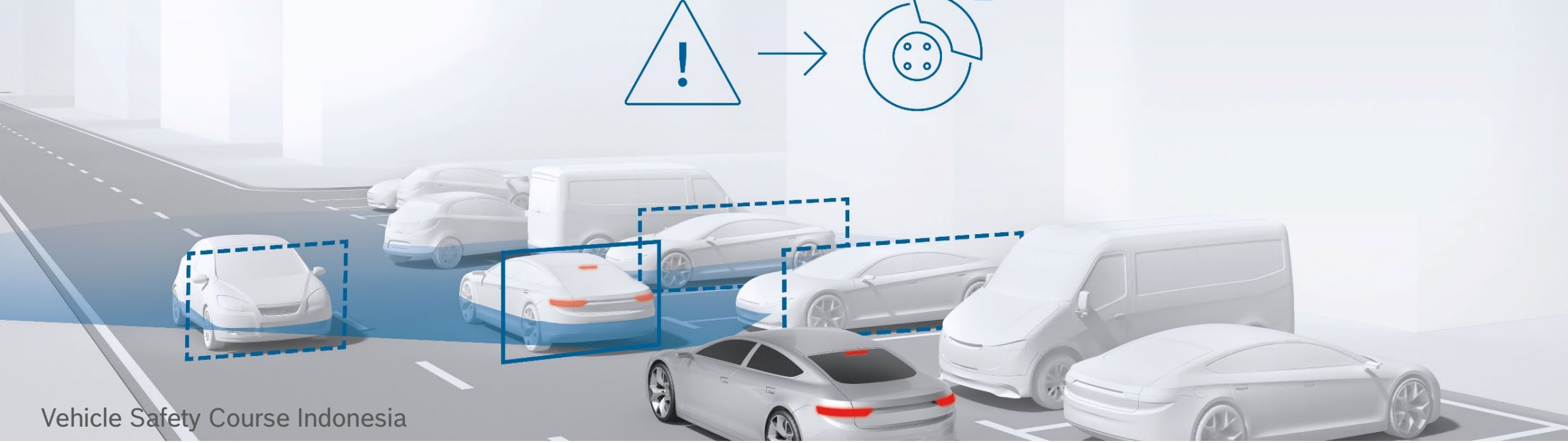


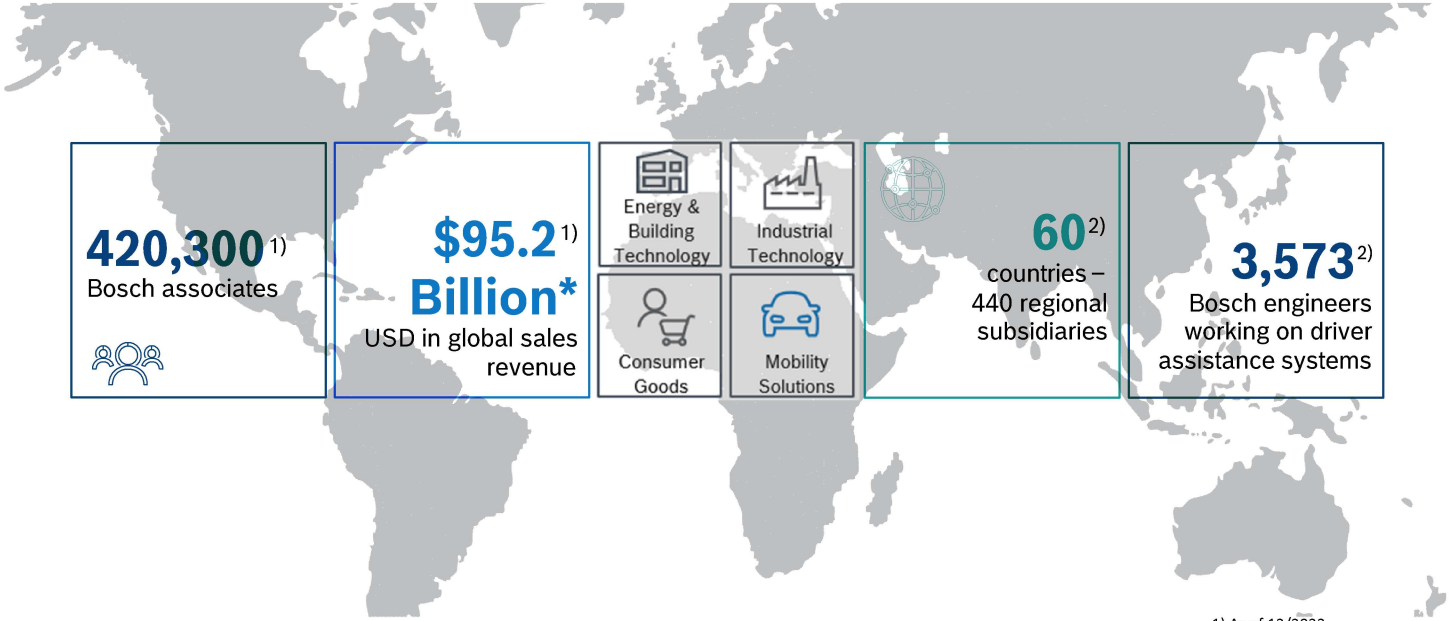
Autonomous Emergency Braking System

Assist in avoiding rear-end collisions and mitigating consequences

Bernard Simanjuntak
Original Equipment Sales Director, PT. Robert Bosch
March 16th, 2023

BOSCH

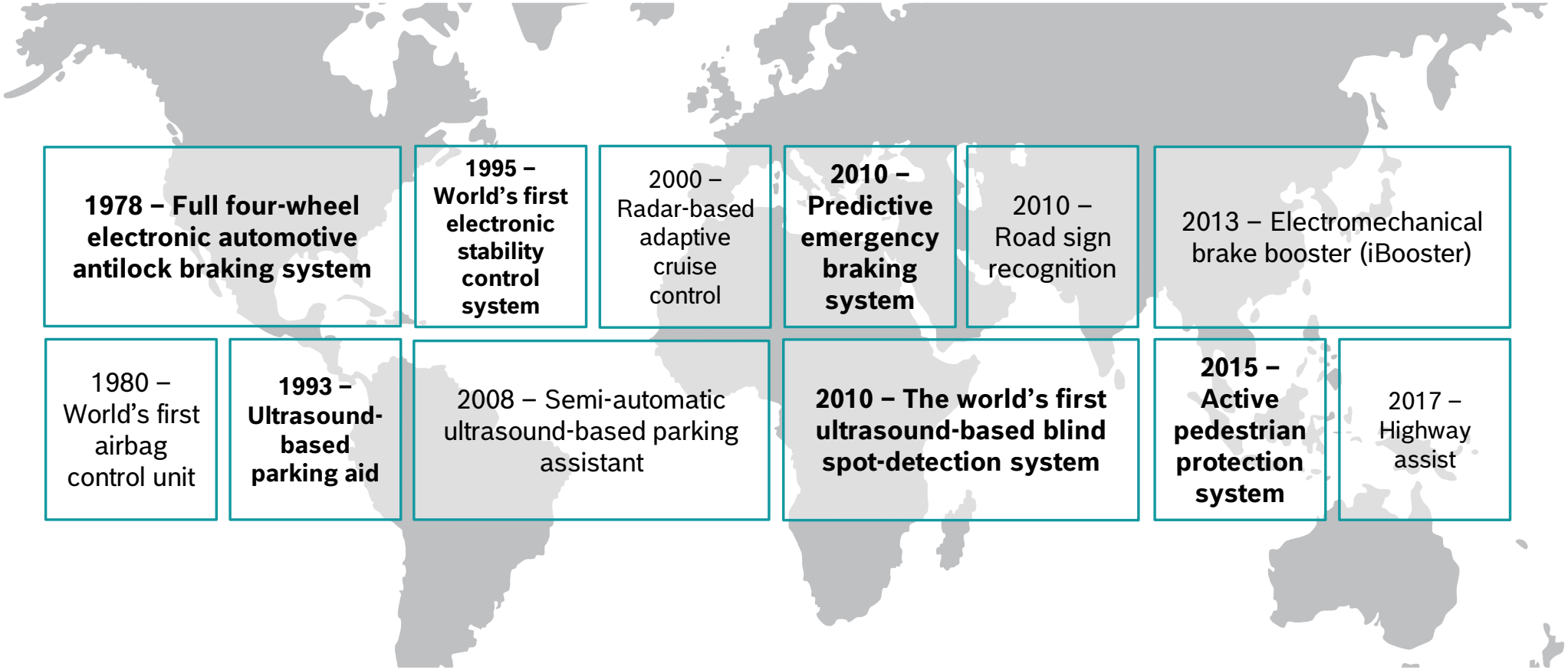
Safer Driving with AEB
Bosch Global Footprint



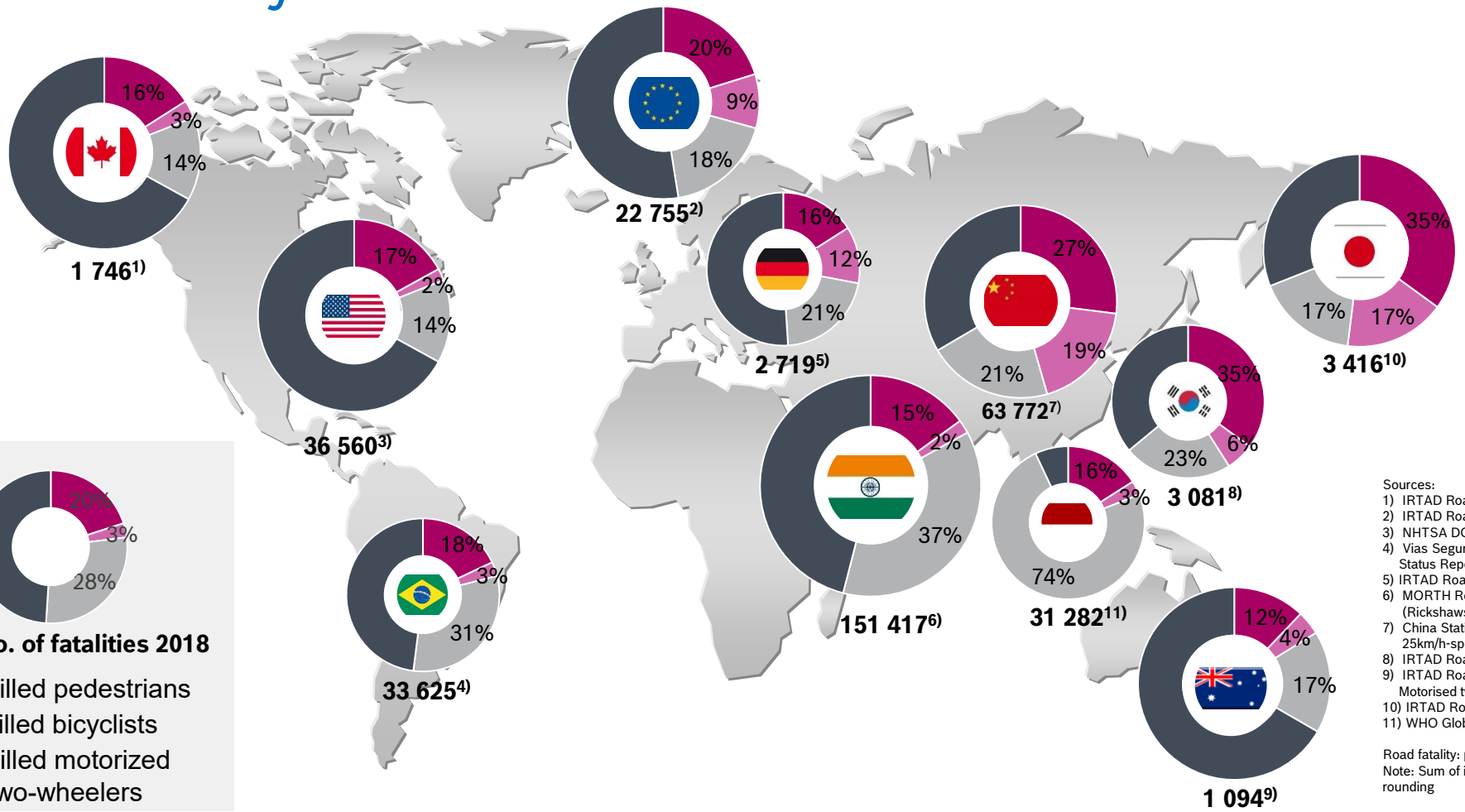
1) As of 12/2022
2) As of 12/2021

Safer Driving with AEB

Bosch Milestones in Vehicle Safety



Safer Driving with AEB
Global Safety Situation

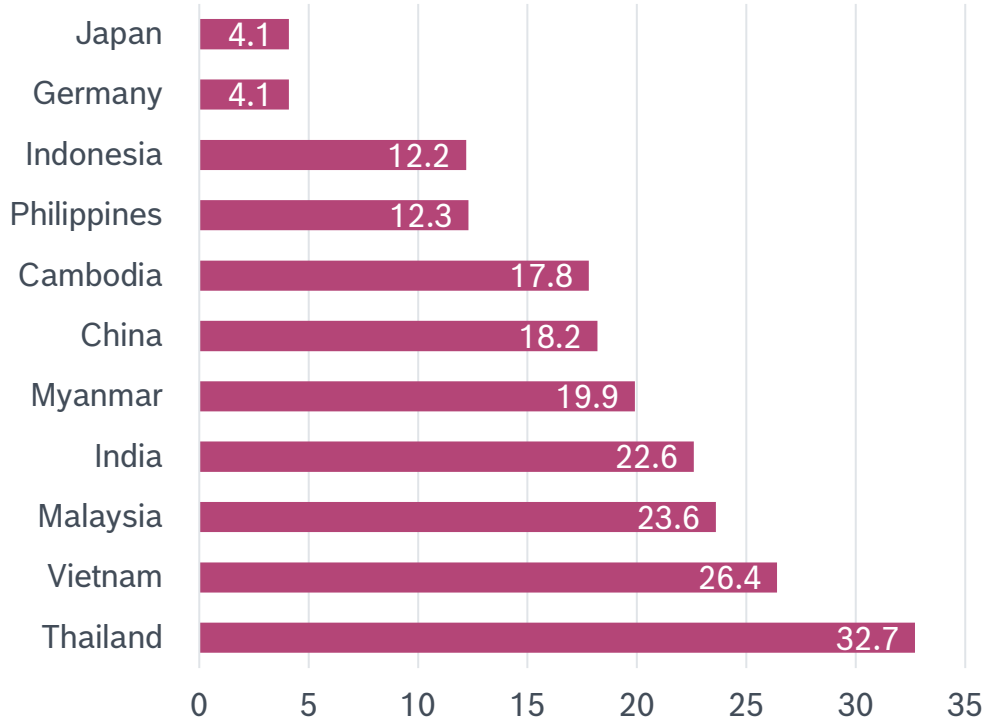


Sources:
1) IRTAD Road Safety Report, data for 2020 estimate
2) IRTAD Road Safety Report, data for 2019
3) NHTSA DOT HS 812826
4) Vias Seguras 2018; distribution data of 2015 out of WHO Global Status Report 2018
5) IRTAD Road Safety Report Germany 2020
6) MORTH Road Traffic Accidents 2018 (Rickshaws are an extra category, share: 5%)
7) China Statistical Yearbook 2017 (share of 25km/h-speed limited pedelecs / E-scooters: 15%)
8) IRTAD Road Safety Report Korea 2020
9) IRTAD Road Safety Report Australia 2020, motorcyclists = Motorised two-wheelers
10) IRTAD Road Safety Report Japan 2020
11) WHO Global Status Report 2018; data of 2016

Road fatality: person died within 30 days of a crash
Note: Sum of individual slices may not add up to 100 percent due to rounding

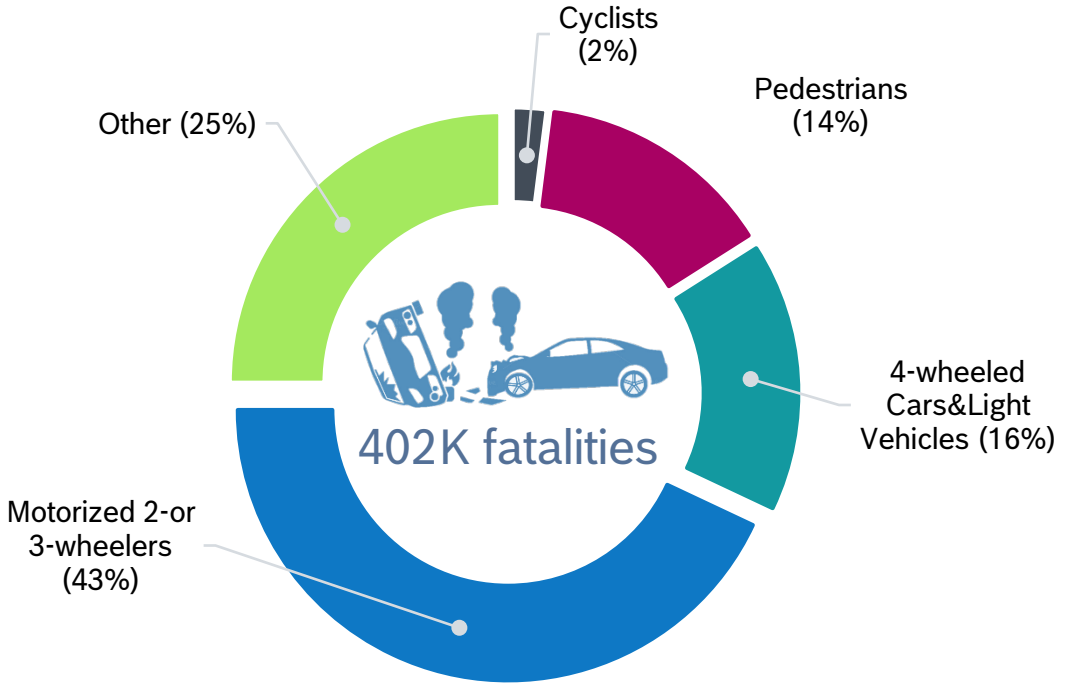
Safer Driving with AEB
Road Safety in ASEAN

Road Traffic Deaths per 100,000 population (2016)



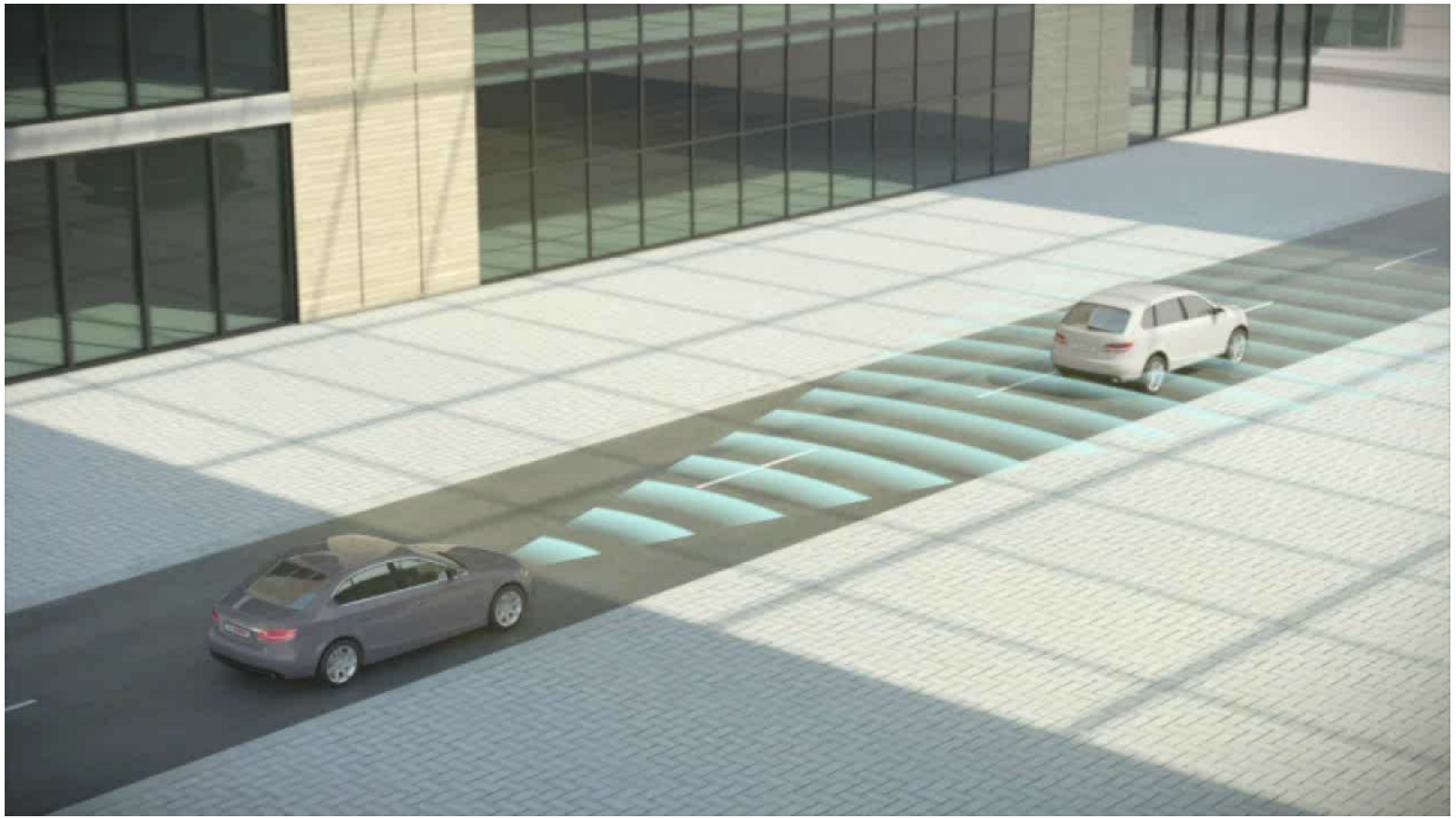
Sources: Global Status Report on Road Safety, WHO estimations (2018)

Fatalities by Road User Type (WHO South-East Asia 2016)

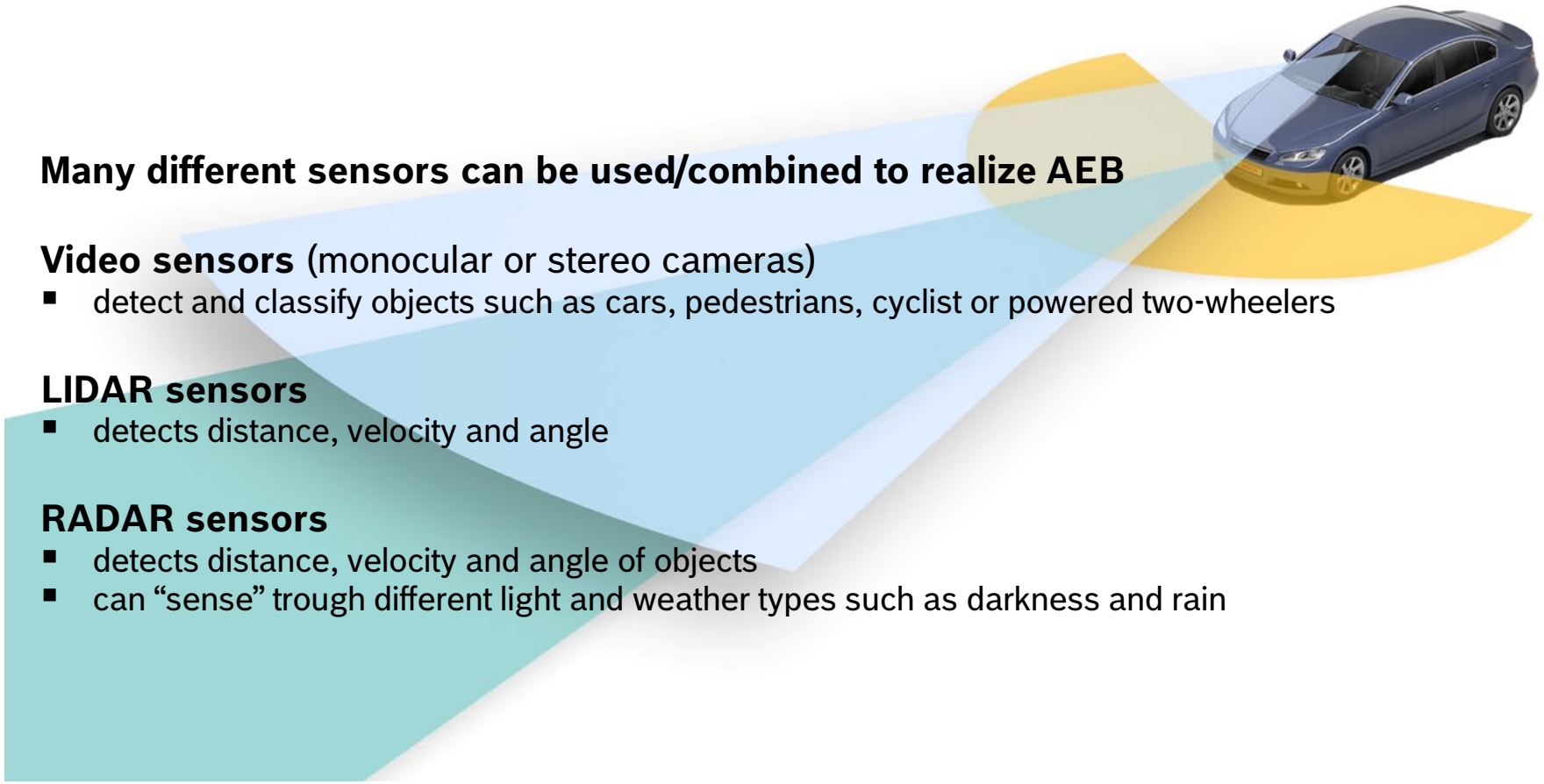


Countries included: Bangladesh, Bhutan, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand, Timor-Leste

Safer Driving with AEB
Autonomous **E**mergency **B**raking



Safer Driving with AEB
Environment Sensors for ADAS



Many different sensors can be used/combined to realize AEB

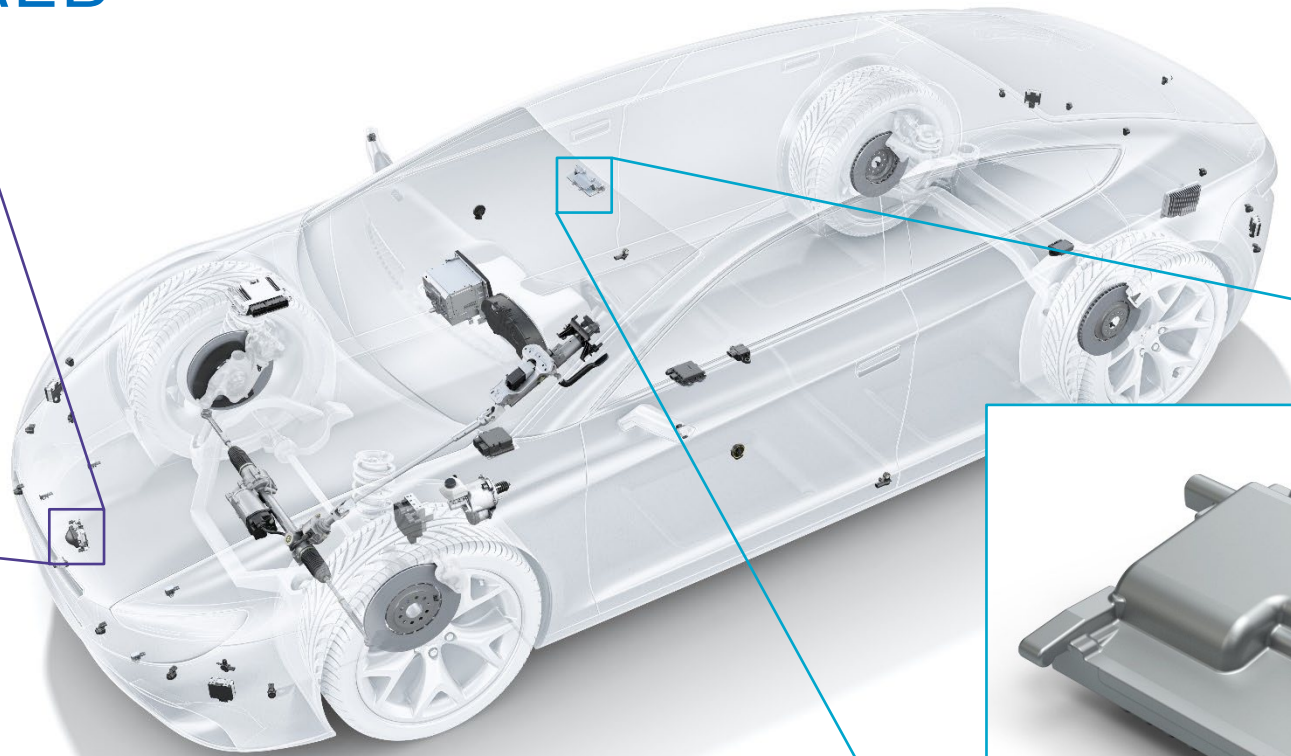
Video sensors (monocular or stereo cameras)
- detect and classify objects such as cars, pedestrians, cyclist or powered two-wheelers

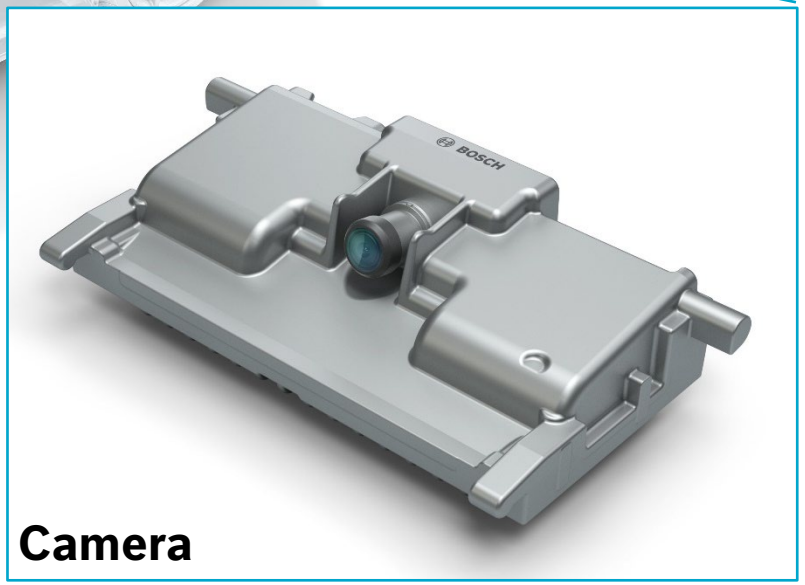
LIDAR sensors
- detects distance, velocity and angle

RADAR sensors
- detects distance, velocity and angle of objects
- can “sense” trough different light and weather types such as darkness and rain

Safer Driving with AEB
Sensors for AEB

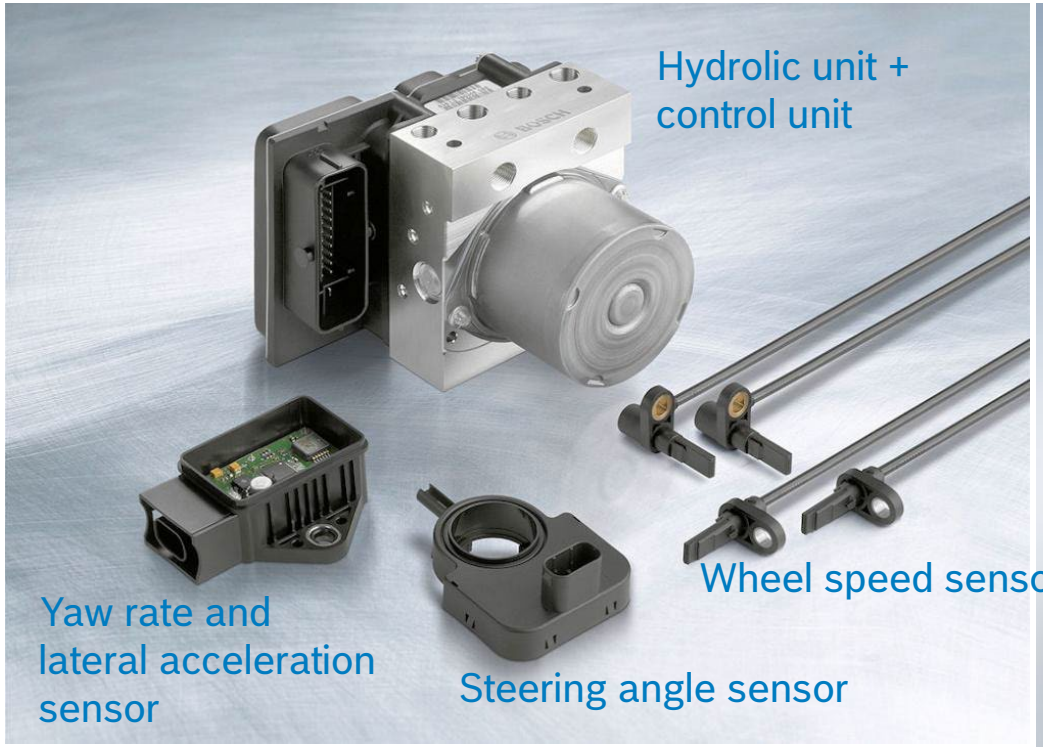
RADAR Sensor

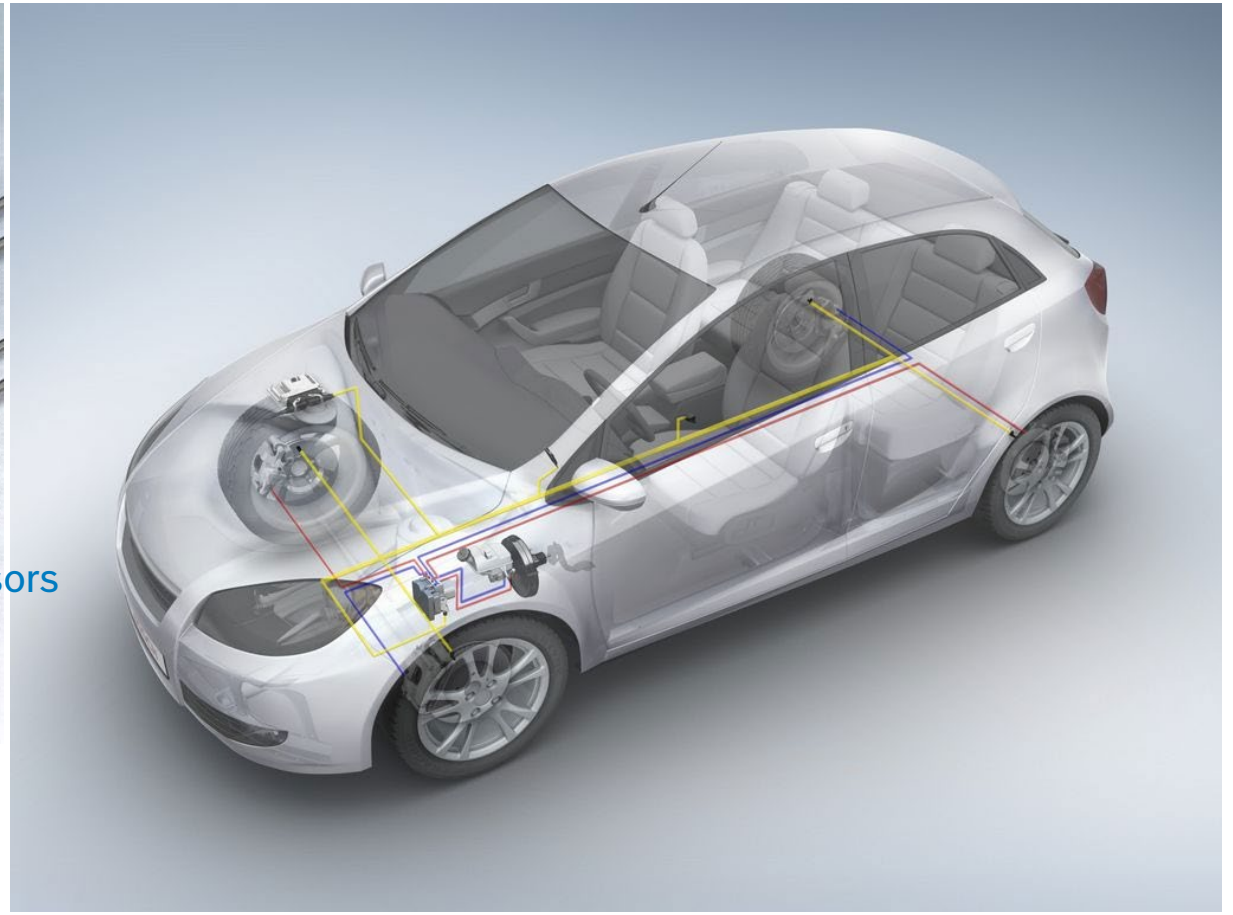




Camera

Safer Driving with AEB
Electronic Stability Control





Safer Driving with AEB
Working Principle of AEB

System detects distance to preceding vehicle is becoming critically short

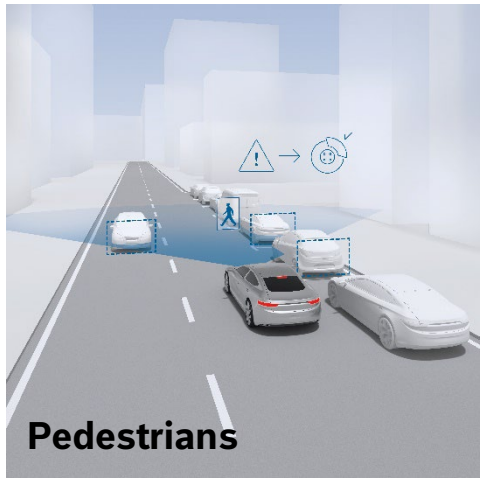
Prepares braking system for potential emergency braking

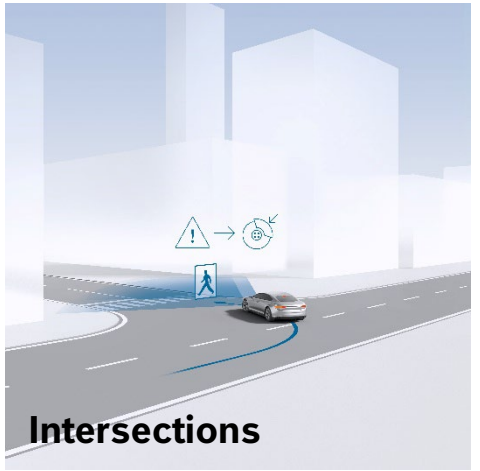
Full braking pressure applied

Both vehicles safely drive

Safer Driving with AEB

AEB Systems – also for Vulnerable Road Users

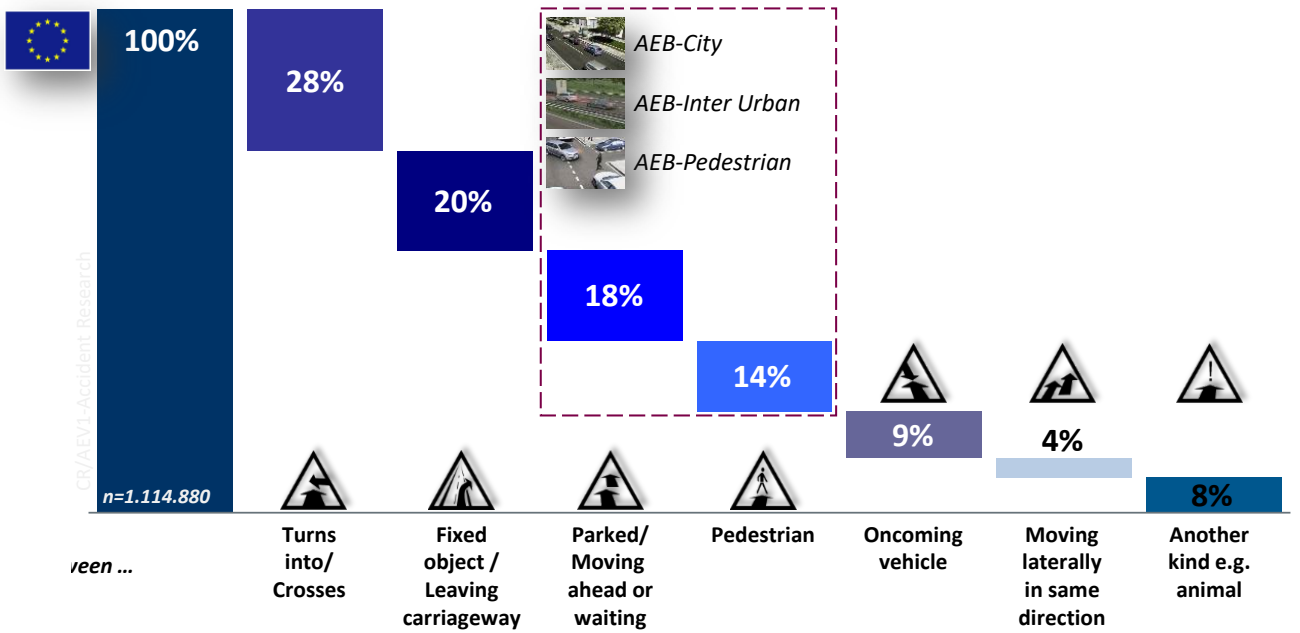




Safer Driving with AEB

AEB support even in adverse weather

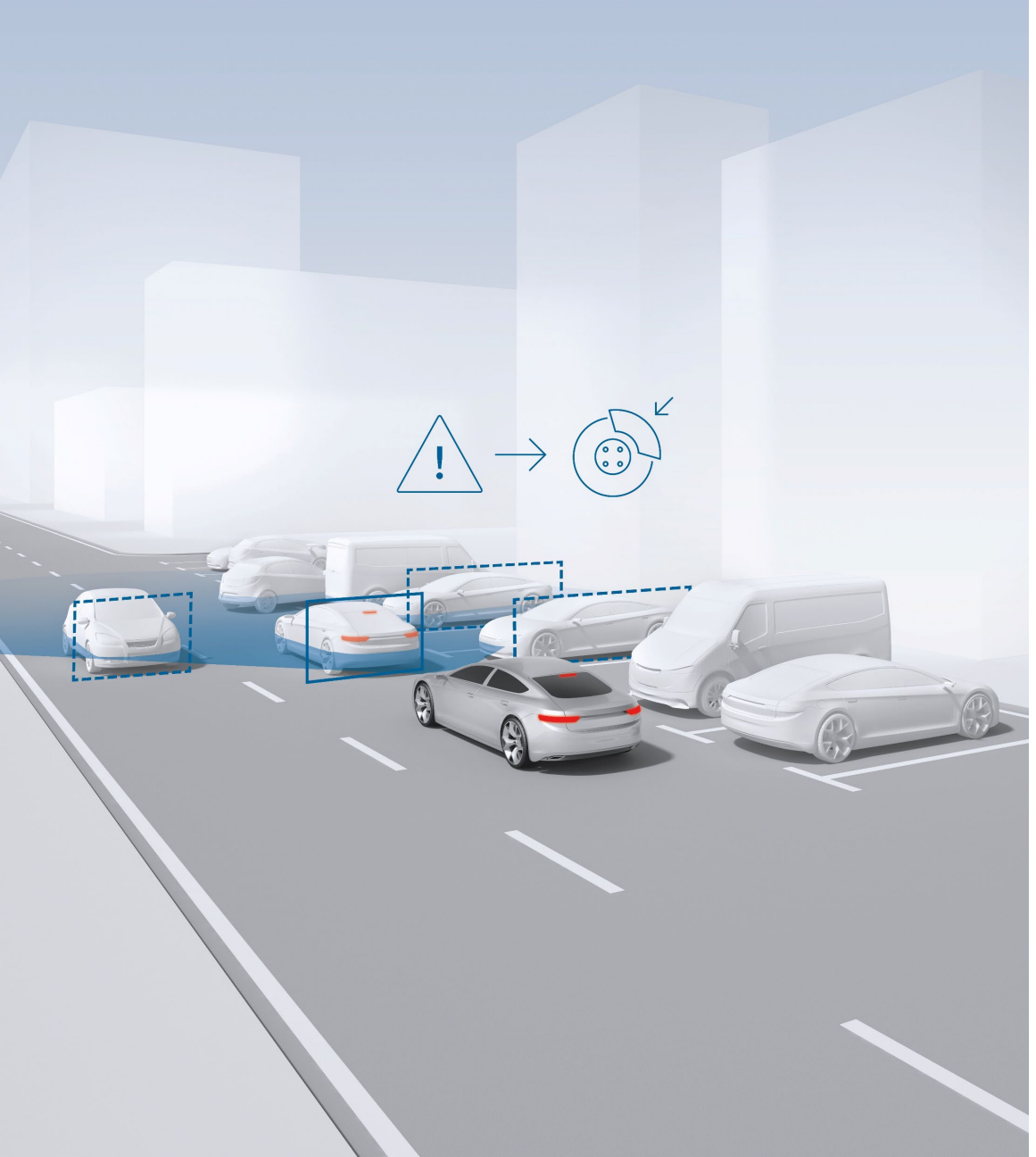
Safer Driving with AEB
Safety Potential of AEB



1) Source: IRTAD 2003, Interpolation to 2010 using national statistics
2) 22% out of ~5 Mio. accidents w/ damage only; Bosch Accident Research Analysis 2009, AZT/Bosch database 2004-'07

Benefit for Road Safety

- **~50% reduction** of rear-end crashes (IIHS 2019)
- **~56% reduction** of rear-end crashes /w injuries (IIHS 2019)
- **up to 30% reduction** of relevant pedestrian accidents in the U.S. (Bosch 2015)
- **45% reduction** in 3rd party claims found for VW Golf VII equipped /w AEB in the UK (Thatcham 2015)



Thank you

BOSCH