

# Truck SAFE

Delivering Safe Heavy  
Commercial Vehicles



# Introduction

## Improving commercial vehicle safety

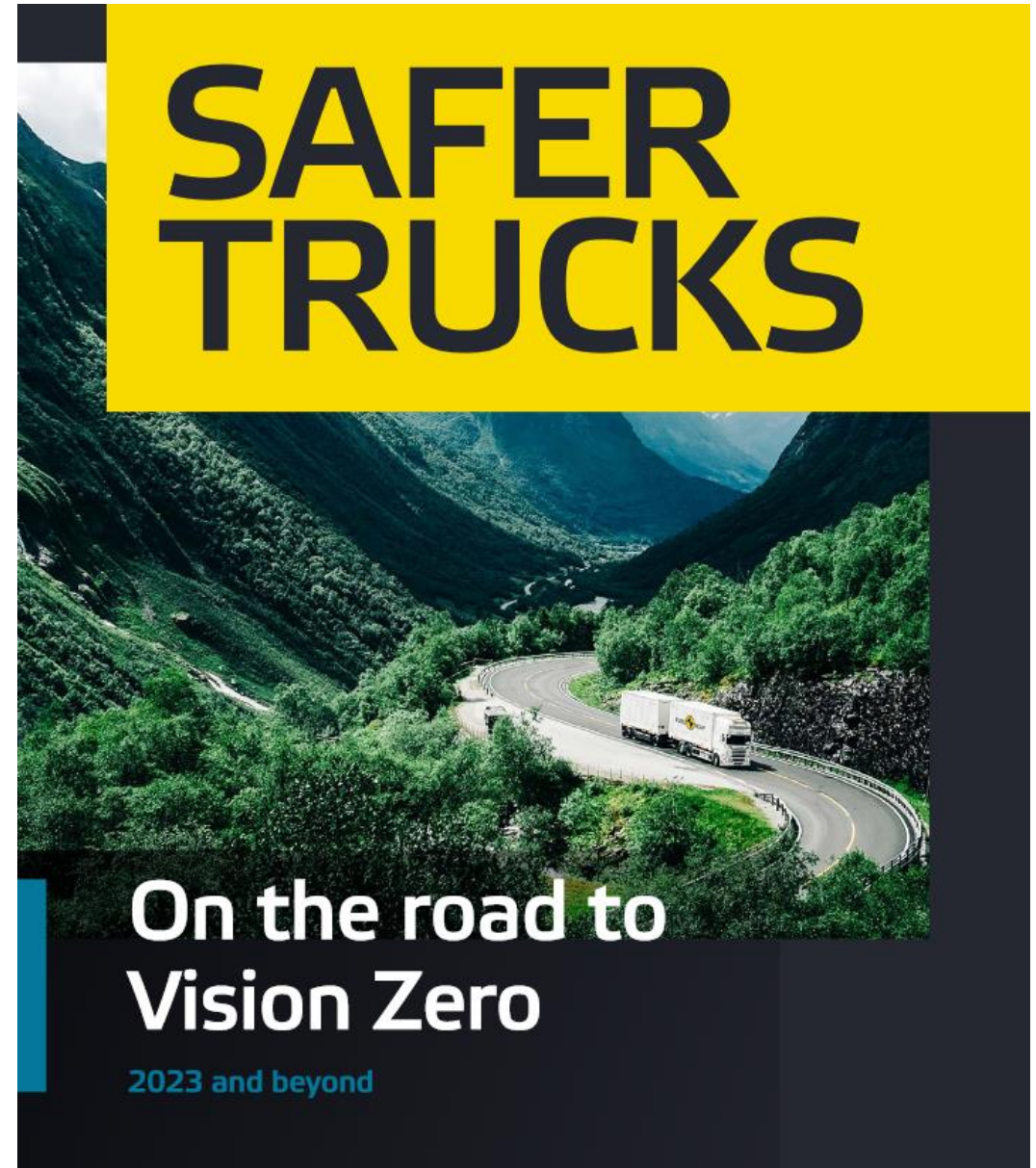
- Euro NCAP's LCV ratings in 2020
- Delivering Vision Zero with HGVs

## Testing trucks

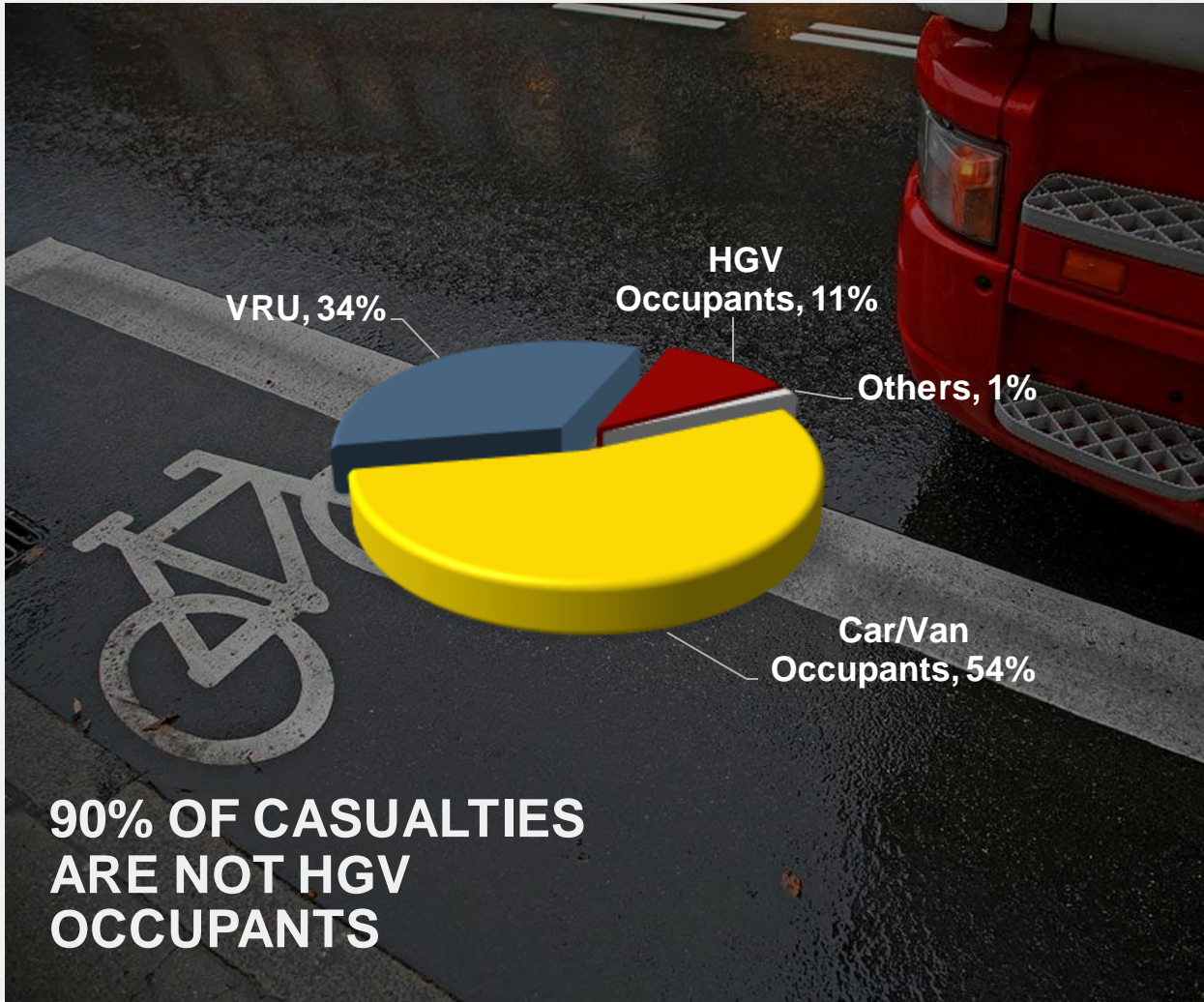
- Initial focus on crash avoidance
- Crash protection to follow by 2030

## New stakeholders, new message

- A B2B value proposition



# Why HGVs?



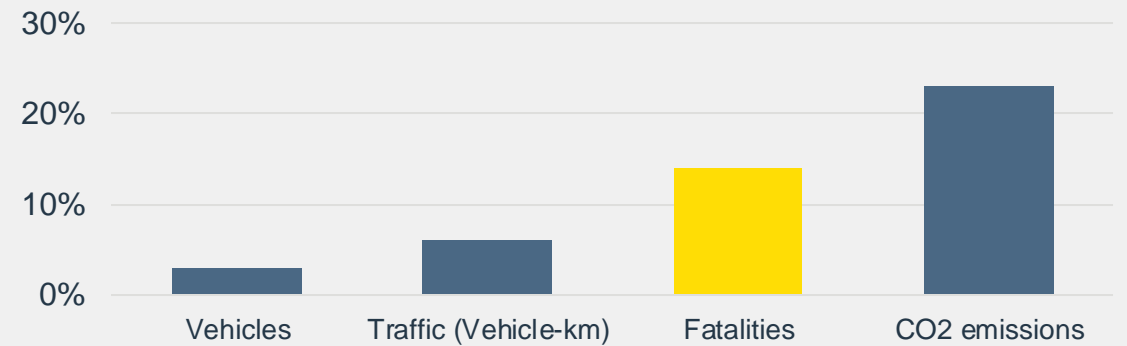
## HGVs essential to EU economy

■ Freight traffic strongly linked to GDP

## Overinvolved in fatalities cf. cars

■ <3% of fleet but 15% of fatalities

## Scope for improvements beyond regulation (GSR2)



Source: ERSO EU fatalities, Eurostat EU vehicles, DfT UK traffic. HGVs>3.5t

# Crashes Involving CVs

Total number of road users killed on all road types in accidents with two parties involved and solo accidents in 2017-2019 listed by collision opponent



Fatalities	... in accidents with ...											Overall	
	Solo accidents	Pedestrian	Bicycle	Moped	Motorbike	Car	Bus	CV (< 3.5t)	CV (> 3.5t)	Semi-truck	Tractor		Tram
Pedestrians	1	0	31	30	208	3770	182	493	315	176	23	93	5322
	0%	0%	26%	55%	46%	31%	41%	31%	18%	13%	8%	54%	
Cyclists	627	10	48	9	56	1250	48	174	220	114	25	24	2605
	6%	23%	40%	16%	12%	10%	11%	11%	13%	8%	9%	14%	
Moped rider	260	2	4	7	15	384	5	41	32	11	14	1	776
	3%	5%	3%	13%	3%	3%	1%	3%	2%	1%	5%	1%	
Motorbike rider	2034	16	25	7	132	2652	52	304	170	91	130	4	5617
	20%	36%	21%	13%	29%	22%	12%	19%	10%	7%	47%	2%	
Car occupants	6425	11	9	2	45	3951	148	474	835	725	73	38	12736
	64%	25%	8%	4%	10%	32%	33%	30%	48%	54%	27%	22%	
Bus occupants	42	0	2	0	0	16	1	3	22	9	0	6	101
	0%	0%	2%	0%	0%	0%	0%	0%	1%	1%	0%	3%	
CV occupants (< 3.5t)	334	1	0	0	1	111	8	85	103	142	8	6	799
	3%	2%	0%	0%	0%	1%	2%	5%	6%	11%	3%	3%	
CV occupants (> 3.5t)	118	1	0	0	0	16	1	10	35	29	0	0	210
	1%	2%	0%	0%	0%	0%	0%	1%	2%	2%	0%	0%	
Semi-trailer occupants	81	0	0	0	0	16	1	7	4	51	0	0	160
	1%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	
Tractor occupants	95	0	0	0	0	16	0	2	3	2	1	1	120
	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Tram occupant	1	3	1	0	0	1	0	0	0	0	0	0	6
	0%	7%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Overall	10018	44	120	55	457	12183	446	1593	1739	1350	274	173	28452
	35%	0%	0%	0%	2%	43%	2%	6%	6%	5%	1%	1%	

# Road Environment

## Strong differences in distribution of collision types

- VRU crashes dominate in city environments
- Car occupant protection highest priority on highways

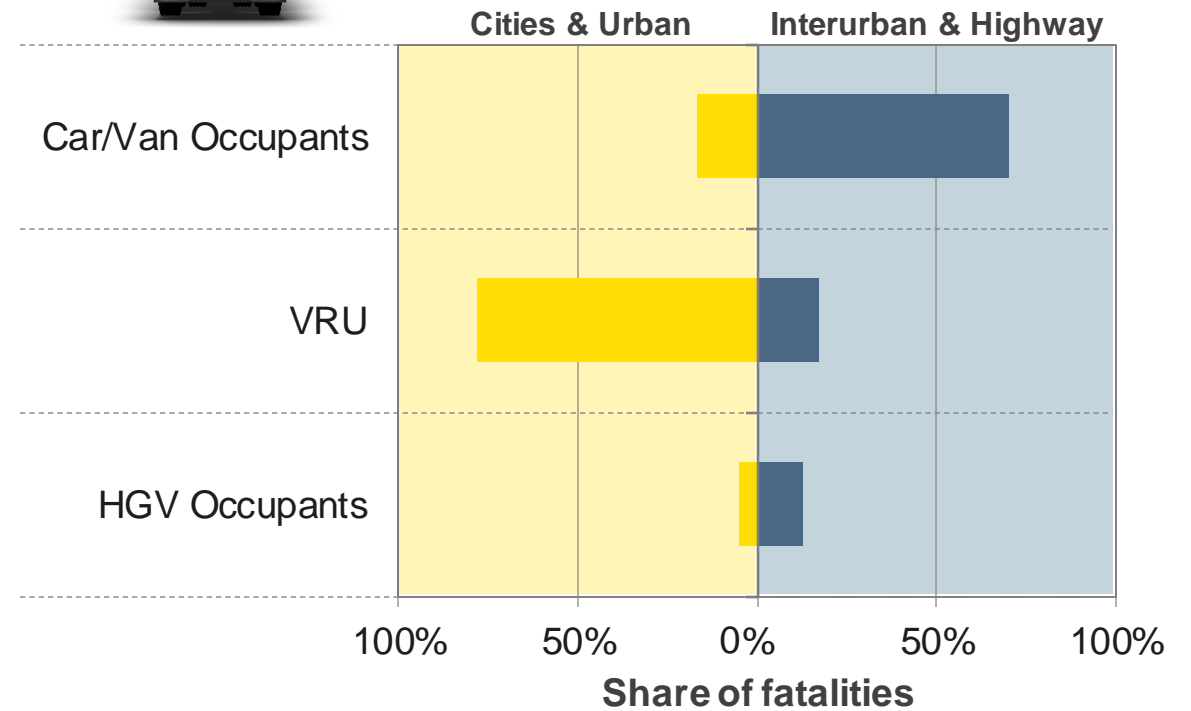
## Safety ratings must reflect specific vehicle use

- Many fleet trucks travel in both – City/Interurban and Highways



## HGV Safety Priorities

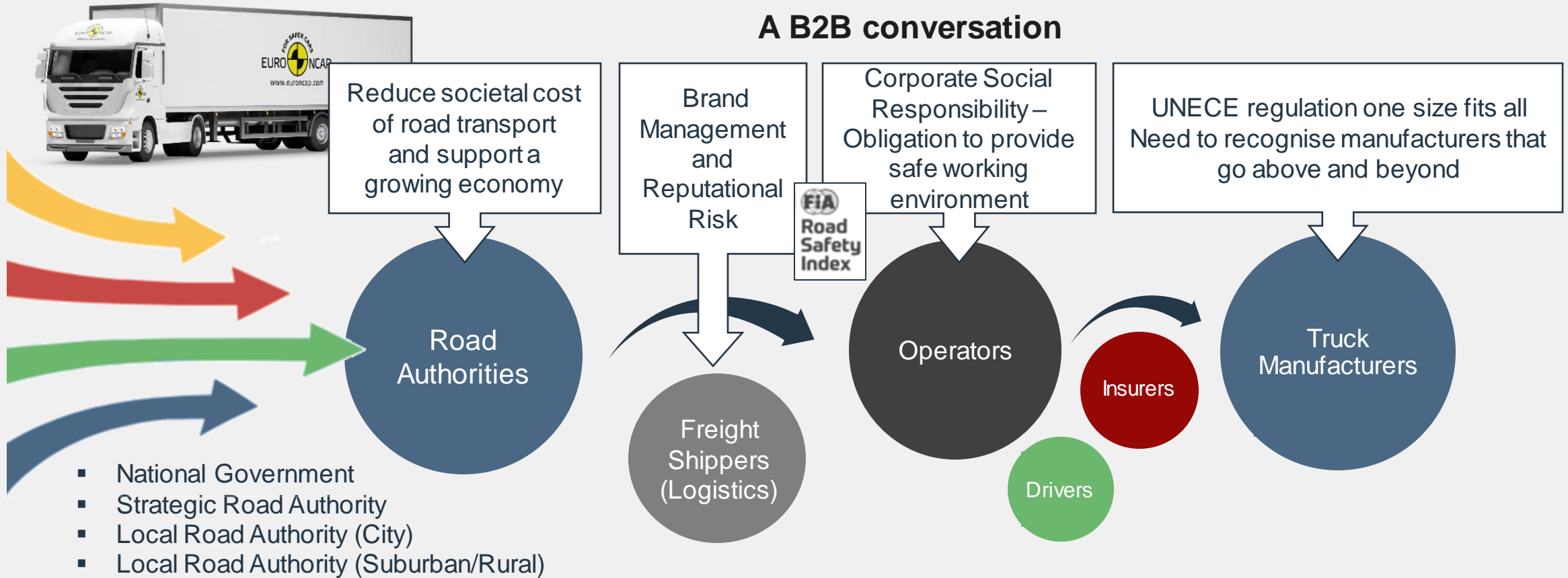
### Distribution of collision types



# Safety Ecosystem

## International & Harmonised Best Practice Safety Ratings

### A B2B conversation



# Rating Approach

## Delivering straightforward and accessible safety information

- Consistent with cars, vans
- Rating at generic, in future VIN, level

## Prioritise crash prevention but plan for passive measures

## Overall rating with supplementary information to emphasise suitability

- e.g. City Safe and EV

## Three year update cycle

“

### City Safe

Safety features effective for urban and city crash types, schemes implemented by city authorities

”

“

### EVs

Recognition of manufacturers offering Zero Emission variants

”

# Matching Crash Types with Technologies

## Which countermeasures should be promoted and when?

Common crash types involving HGVs and other road users	Available (2024)							Emerging (2027)				Long-term (2030+)					
	Speed Assistance	Indirect OSM	AEB Vehicle front to rear	Lane Support	AEB VRU	Vision	AEB Nearside turn	Rescue info, ..	Direct OSM	Motion Inhibit	AEB PTW front to rear	AEB Reverse	AEB TAP	AEB Head On	Passive Ped Protection	Crash compatibility front/side	Occupant protection
VRU crossing																	
Stationary or walking VRU																	
VRU in collision with low-speed manoeuvring truck																	
VRU in collision with reversing HGV																	
PTW rider in collision with HGV																	
Car occupant in collision with HGV																	
HGV occupant in collision																	



# Partners in test development

Protocols adapted from Euro NCAP car assessment and regulation

Verification on test track supported by laboratories and manufacturers



AstaZero

**bast**  
Bundesanstalt für  
Straßenwesen

**CSI**

**DEKRA**

**Applus<sup>+</sup>**  
**IDIADA**

**MIRA**



**Transpolis**

**UTAC**

# Truck to Car AEB

AEB Static 60kmh



Source: MIRA



# Car and VRU AEB



# Nearside Turn AEB



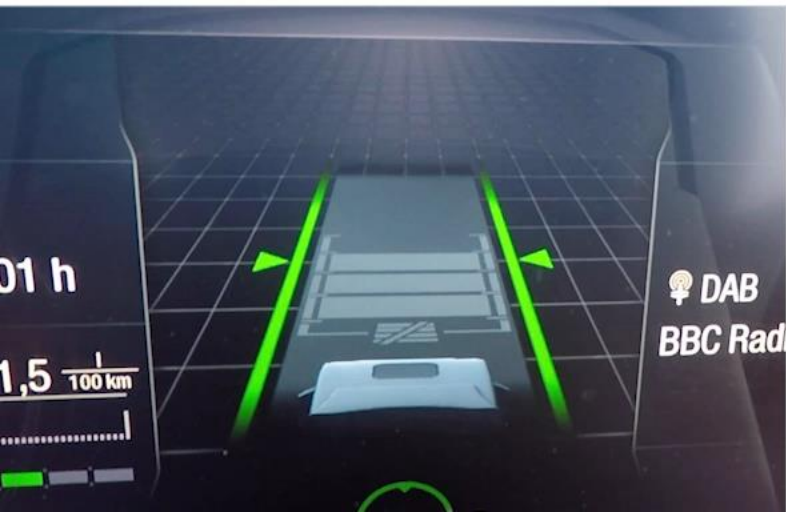
# Nearside Turn AEB



# Lane Support



Emergency Lane Keep



Source: MIRA

# Other Assessments

**Direct Vision**

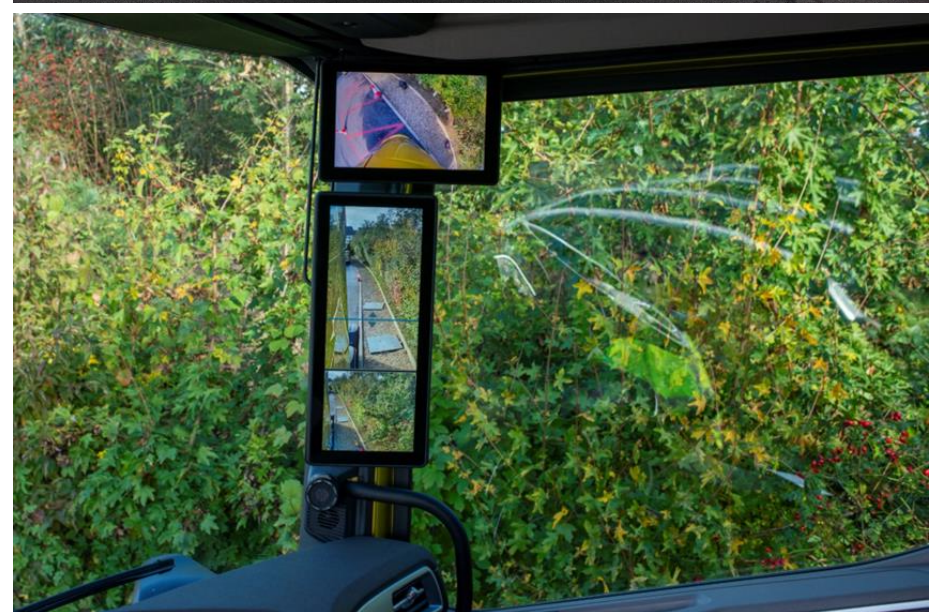
**Indirect Vision - eMirrors**

**Intelligent Speed Adaption**

**Driver Monitoring**

**Seat Belt Reminders**

**Rescue information for 1<sup>st</sup> Responders**



# Test Procedures Overview

## AEB Truck to Pedestrian

Addressing pedestrian crossing and inline crashes

## AEB Cyclist incl. junctions

Addressing cyclist crossing, inline and nearside turn crashes

## Direct Vision

Addressing close proximity manoeuvring collisions with VRUs

## Indirect Vision

Addressing VRU and vehicle collisions outside of direct vision

## Rescue Information

Access to occupants within the Golden Hour



## AEB Truck to Car

Addressing front-to-rear collisions with other vehicles

## Lane Support

Addressing highway and rural road lane departure

## Emergency Lane Keeping

Addressing lane change crashes involving overtaking vehicles

## Driver Monitoring

Addressing seatbelt wearing and driver attentiveness

## Speed Assistance

Addressing HGV speeding



# Draft HGV Rating Scheme



Release 2024 (Crash Protection: 2030 onwards)

Safe Driving	Crash Avoidance	Crash Protection	Post Crash
<b>Occupant Monitoring</b> <ul style="list-style-type: none"> <li>▪ Seatbelt usage</li> </ul>	<b>Frontal Collisions</b> <ul style="list-style-type: none"> <li>▪ Car (&amp; Truck)</li> <li>▪ Pedestrian &amp; Cyclist</li> </ul>		<b>Rescue information</b> <ul style="list-style-type: none"> <li>▪ Rescue sheets</li> <li>▪ ERG</li> </ul>
<b>Driver Engagement</b> <ul style="list-style-type: none"> <li>▪ Indirect Monitoring</li> </ul>	<b>Lane change Collisions</b> <ul style="list-style-type: none"> <li>▪ Single Vehicle</li> <li>▪ Car</li> </ul>		<b>Extrication</b> <ul style="list-style-type: none"> <li>▪ Energy Management</li> </ul>
<b>Vision</b> <ul style="list-style-type: none"> <li>▪ Indirect eVision</li> <li>▪ Direct Vision</li> </ul>	<b>Low speed maneuvering</b> <ul style="list-style-type: none"> <li>▪ Pedestrian &amp; Cyclist</li> <li>- Nearside turn</li> </ul>		
<b>Vehicle Assistance</b> <ul style="list-style-type: none"> <li>▪ Speed Assistance</li> <li>▪ ACC</li> </ul>			

## Based on Haddon matrix

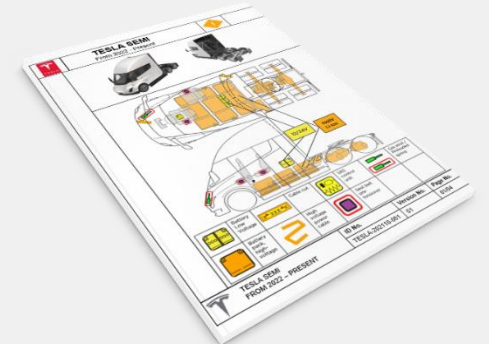
- Adapted from 2026 car scheme
- Threshold for “City Safe” set to reward those vehicles with technologies or design that can address typical VRU crashes

## Including vision requirements

- Direct and indirect solutions

## Promoting Rescue information

- Euro Rescue app



# Vehicle Selection and Derivative Rating

## Selection



- Which derivative offers the most “variant” opportunities?
- Identify common safety functions, e.g AEB, AEB VRU, LSS, SAS, etc.
- VM to identify best & most common spec agreeing with tests vehicle

### Safety Functions



## Single Rating



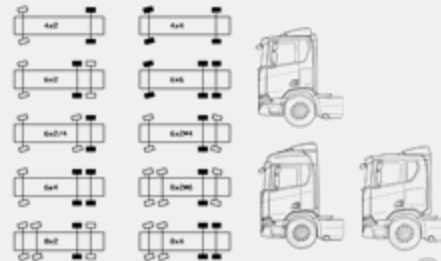
- Truck testing according to Euro NCAP protocols
- Balanced overall score
- Identify City and EV
- Determine “Variant” specific rating



## Assessment

## Application

- Application of rating to other derivatives
- Based on VM information
- Listed on B2B website



### Many Ratings



## Optional VIN Certificate



- B2B database
- Certified VIN level rating via online portal application
- Identifies individual vehicle
- Customer Validation



## Information

# Towards The First Release

Initial 2024 focus on Fleet trucks:  
biggest market

Vehicle selected will have optional  
equipment to highest possible safety  
specification

Manufacturers identified and test  
laboratories nominated



# Future Developments

**Integrate Van and Trucks into a Commercial Vehicle Rating**

**Consideration of safety features added at second stage body building and trailers**

**Add passive safety elements such as enhanced underrun protection**

**Once principles established, expand to bus and coach market**



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