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# Supplier Strategies for the Mobility Transformation

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# Bosch - A Global Network



410,000\*  
Bosch associates make  
these solutions possible



60\*  
countries –  
440 regional  
subsidiaries

## Four business sectors



Mobility  
Solutions



Industrial  
Technology



Energy & Building  
Technology



Consumer  
Goods

\* As of 12.18

# Highlights of the 2018 business year

Sales

**€77.9bn**<sup>1</sup>



EBIT from operations

**€5.3bn**<sup>1</sup>

Research and development

**69,500**

associates worldwide

+5,200



**€47bn**

Mobility Solutions sales revenue



**+37 %**

52m  
web-enabled  
products sold



Headcount rises to

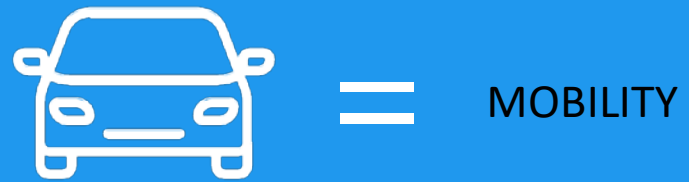
**410,000**

+7,800



MOBILITY IS A  
BASIC NEED







=

MOBILITY



 **BOSCH**



=

**MOBILITY?**



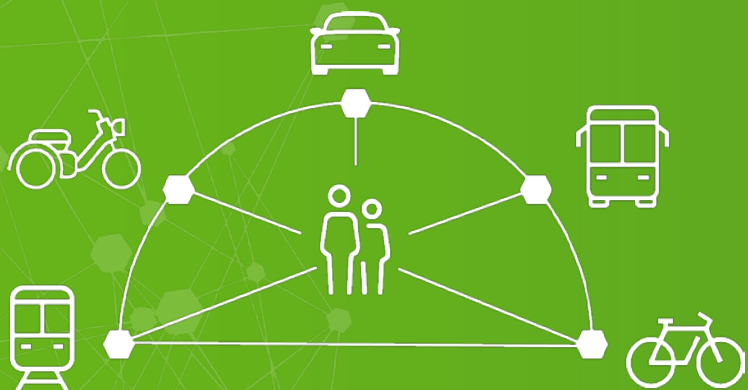


**STOP  
THE PAIN**





It is time for a CHANGE



= Mobility as a Service



# FUTURE Mobility?



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**1,3 Million**  
road casualties  
worldwide yearly

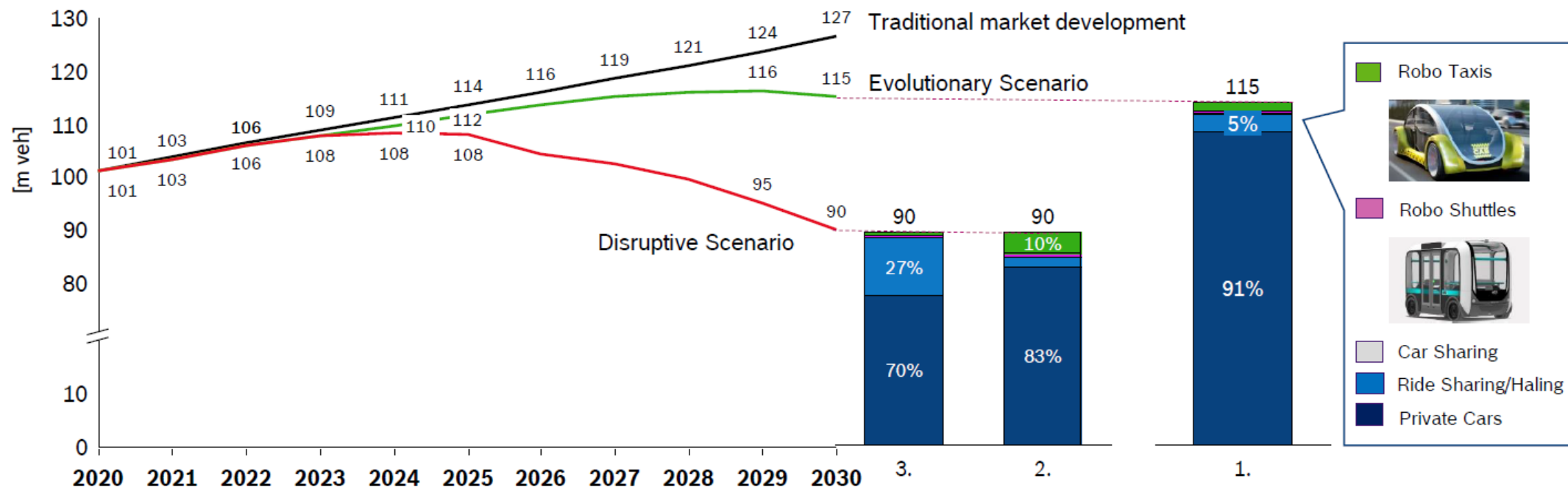
**Exposure to  $\text{No}_x$   
and Particulate  
Matter**

**Climate Change**

**15 km/h**  
average speed  
in our cities

# Mobility Transformation Scenarios

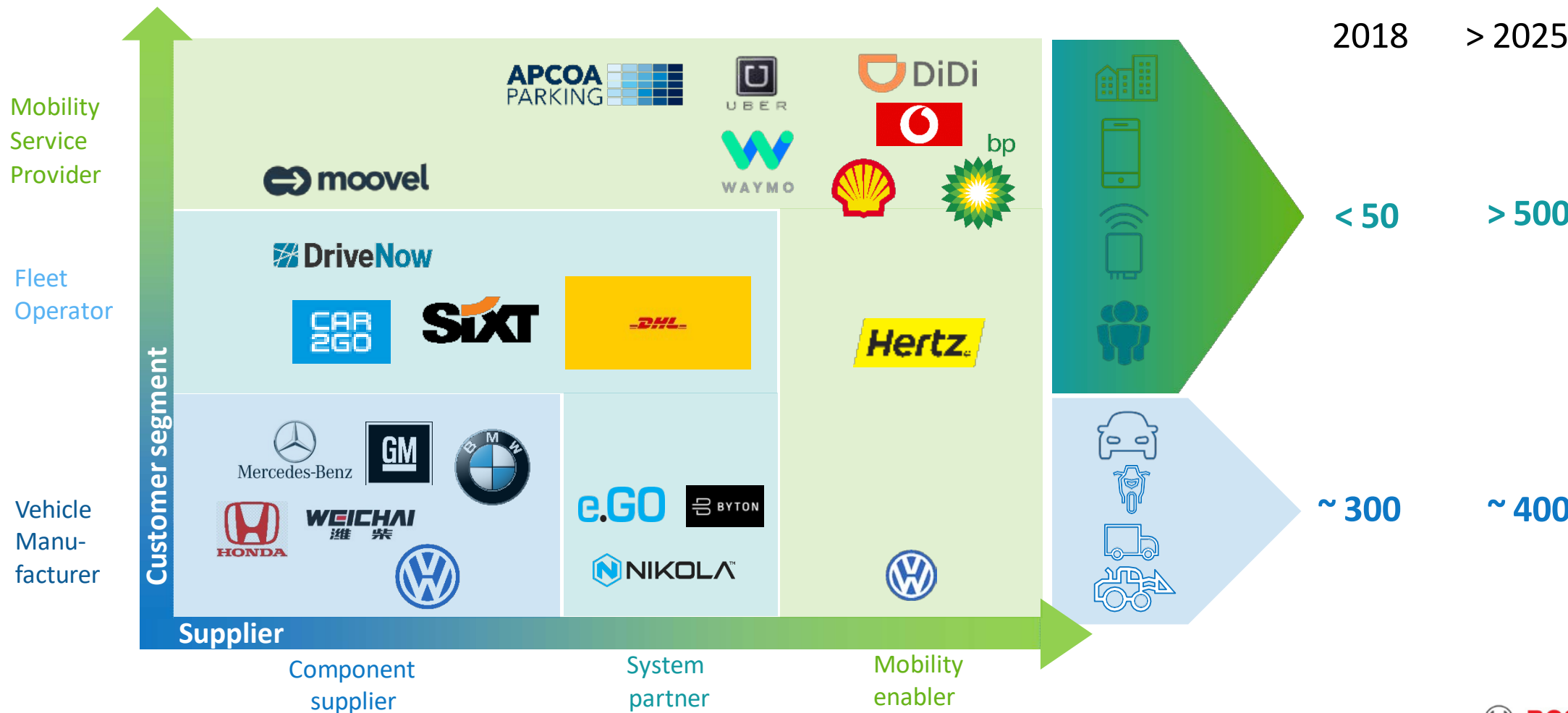
## Reduction of private single car use in disruptive scenarios



Scenarios	CAGR '20-'30	Total Shared	Robo Shuttle	Robo taxi	Total SR*	Premises/Assumptions 2030
1. Evolutionary Sc.	1,3%	9% (x m)	0,7%	2,6%	2,2	Private car use still dominating
2. Disruptive Sc. Robo**	-1,2%	17%	1,4%	10,2%	3,8	Strong increase of robo-taxis
3. Disruptive Sc. Sharing	-1,2%	30%	1,7%	1,1%	2,4	Strong increase of ride sharing (less single private car use)

\* SR – Substitution Rate \*\*Robo – Highly automated driving

# Extended Customer Landscape





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no emissions...



no stress...



no accidents...

# No emissions

Near zero impact on Air Quality in Cities



# No emissions

Modular systems for 2-, 3-, 4- or n-wheelers

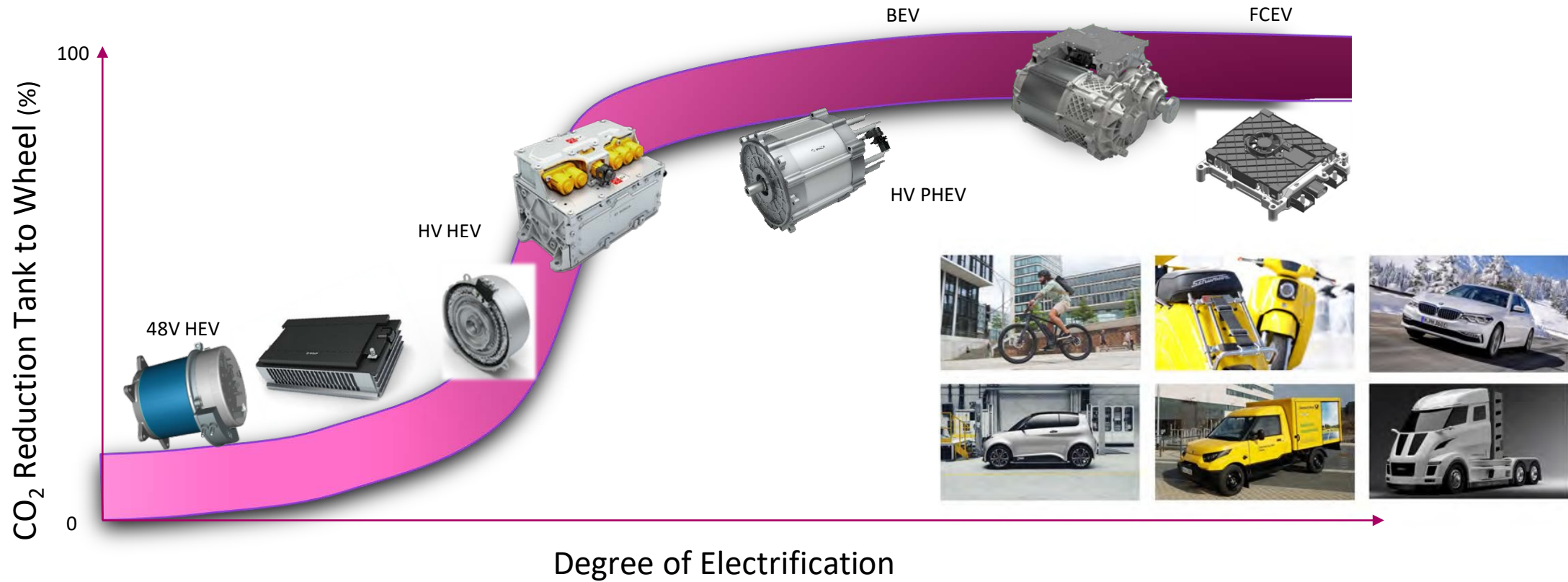


100 Mio.  
Light-electromobility  
vehicles  
Worldwide in 2020



All functions, designs and forms are subject to the needs of applications and industrial property rights.

# Powertrain Electrification





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# No emissions

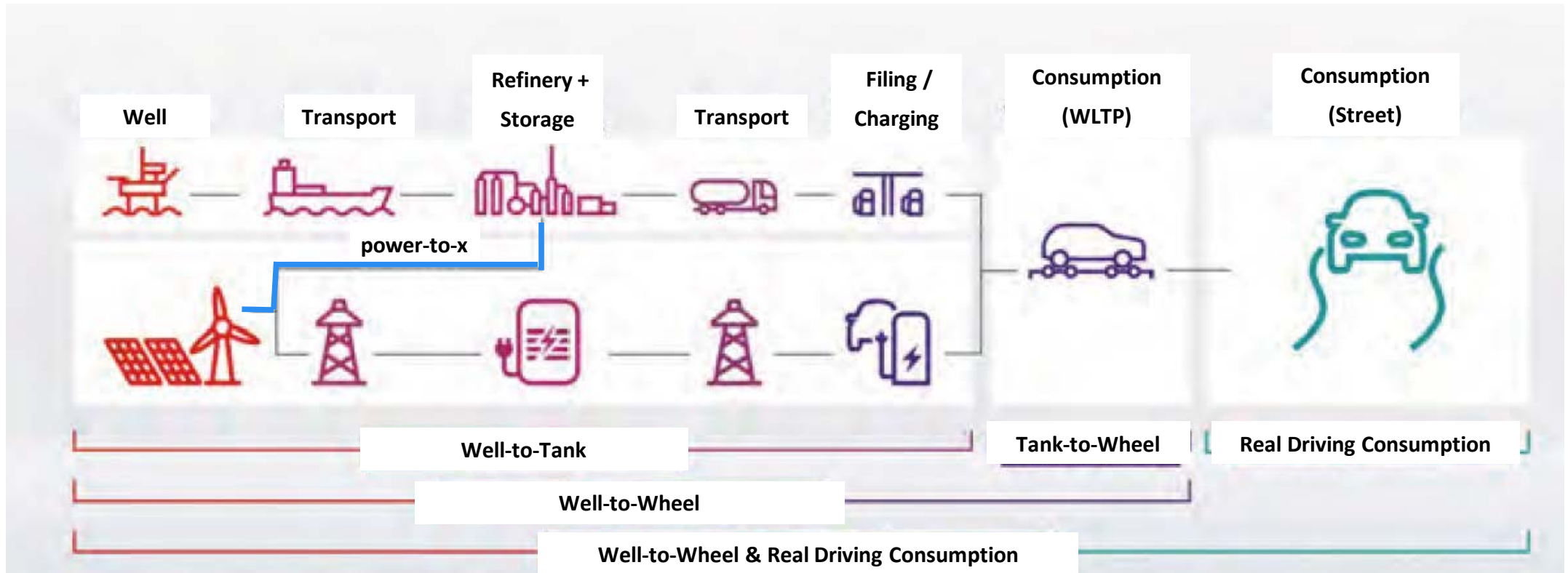
## BEV Charging Services

„Battery in the Cloud“



# CO<sub>2</sub> Emissions

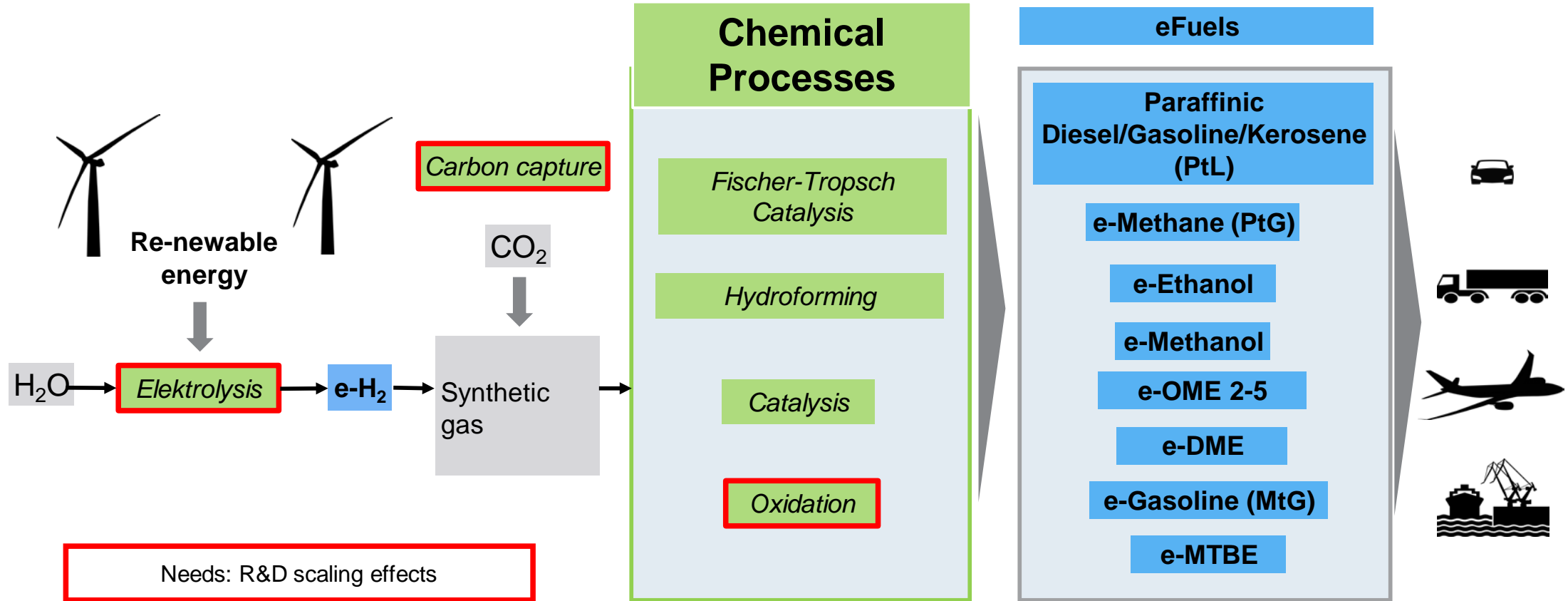
**No emissions**  
CO<sub>2</sub> challenge



**Well to Wheel Transparency / More Clarity in Climate Protection**

# Powerfuels: A needed contribution to de-carbonizing mobility

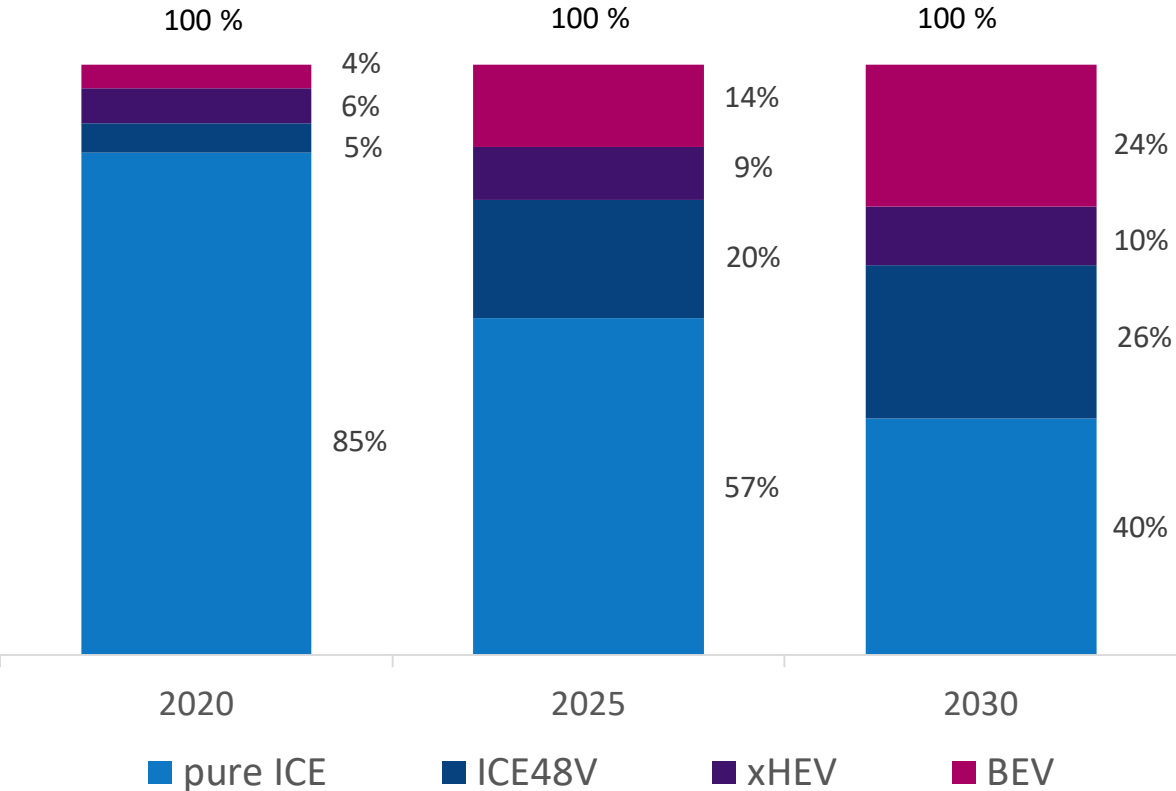
eFuels = re-newable energy,  $\text{H}_2\text{O}$  and  $\text{CO}_2$



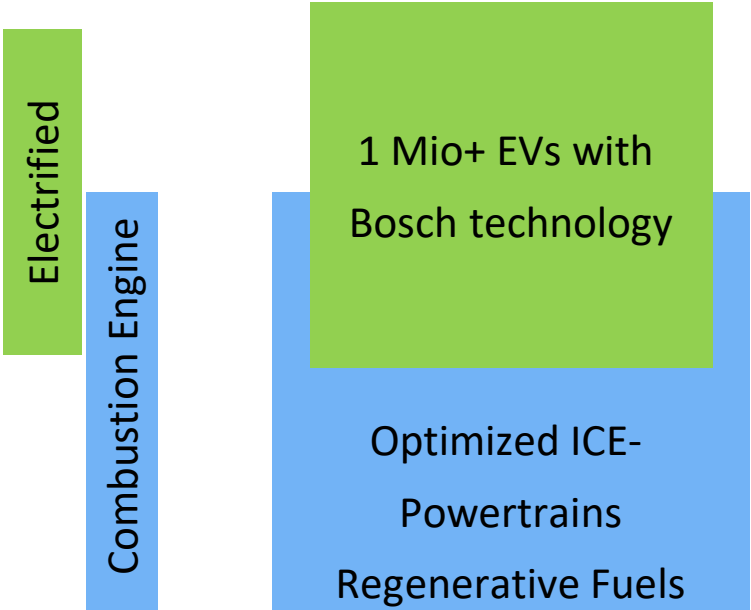
DME = Dimethyl ether, OME = Oxymethylene ether, MTBE = Methyl-tert-butylether

# Propulsion 2030

Expected powertrain split PC and LCV < 6t



no emissions



In 2030 ~25% of new registrations are purely electric. Combustion engine remains important



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**no accidents**

**no stress**

**Addressing 26% of  
accidents trough  
automated driving  
L2 / L3**

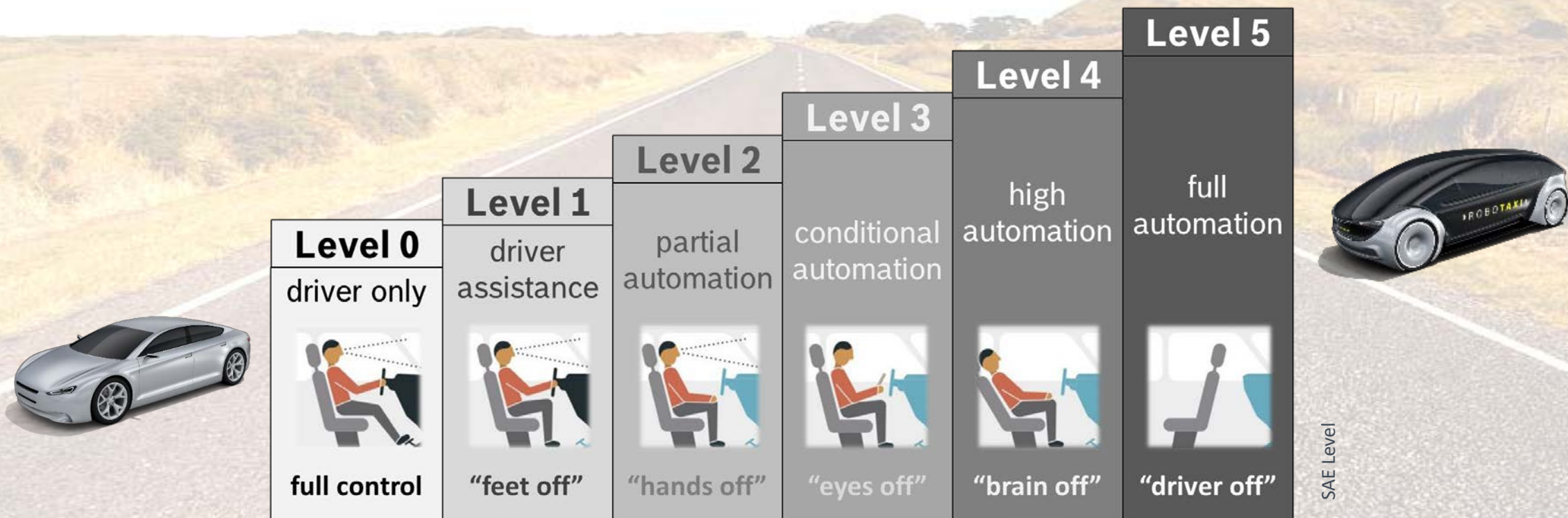
**DriverLESS  
Parking**



# Paving the way to Automated Driving

## Different Steps towards Full Automation

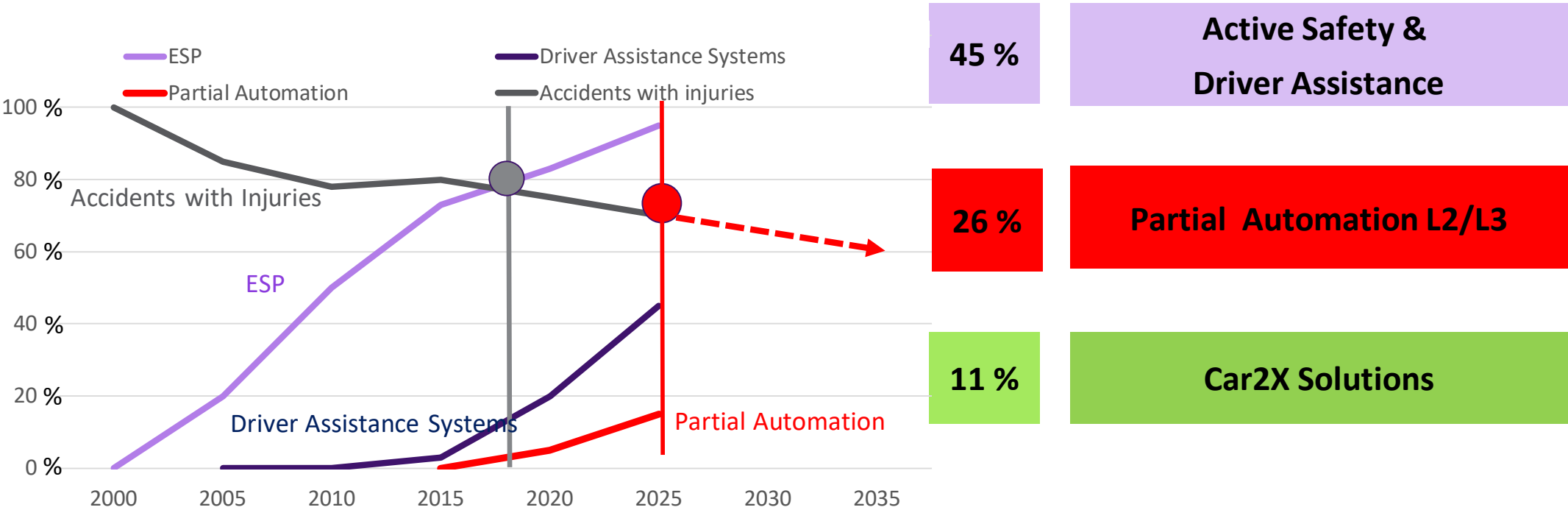
no accidents...



# Automated Driving Safety Potential

no accidents...

Installation Rates / Accidents with Injuries in Germany

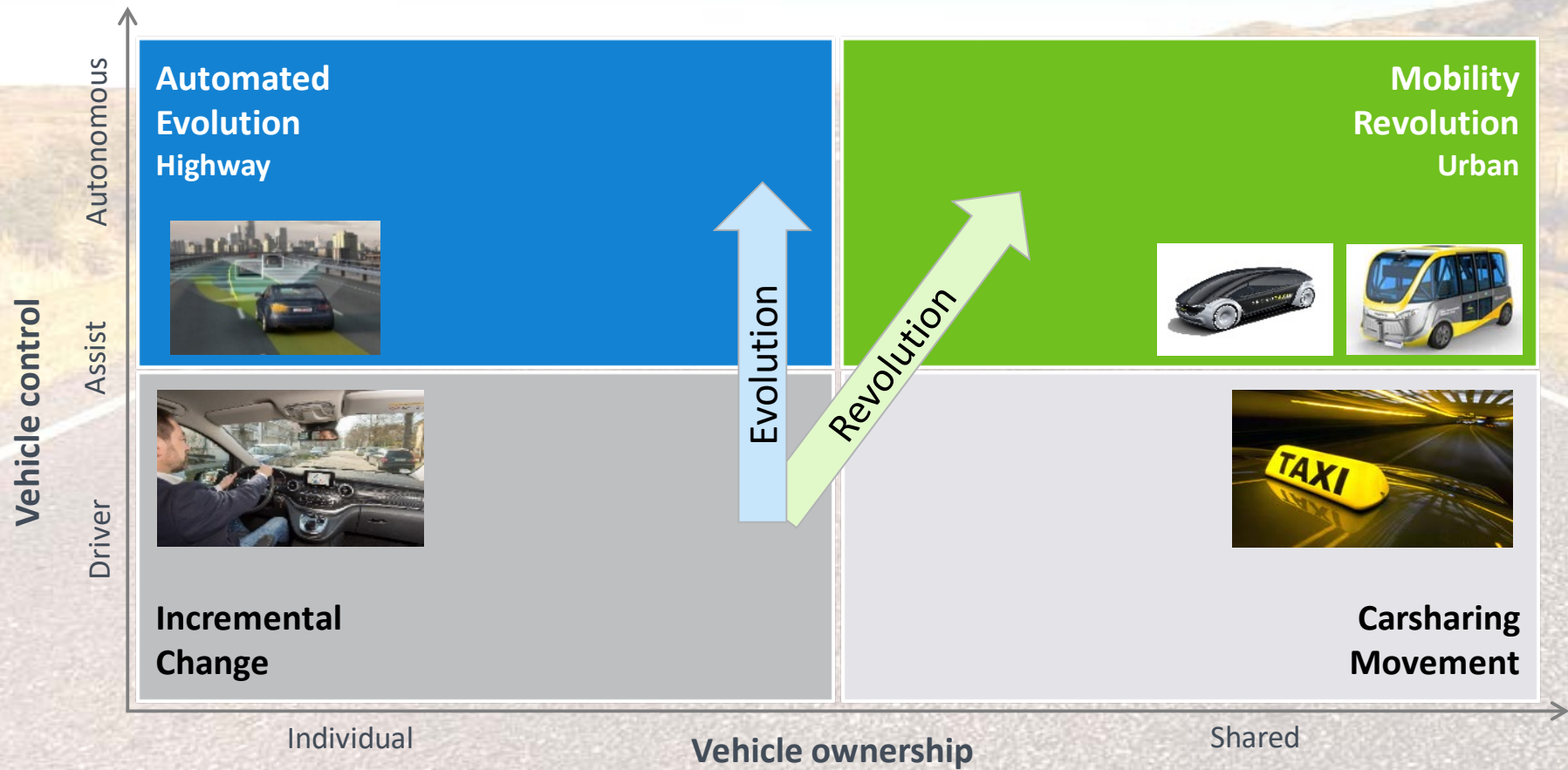


Automated driving has big potential for accident avoidance

# Paving the way to Automated Driving

## Two main areas emerge in the market

no accidents...



# Paving the way to Automated Driving

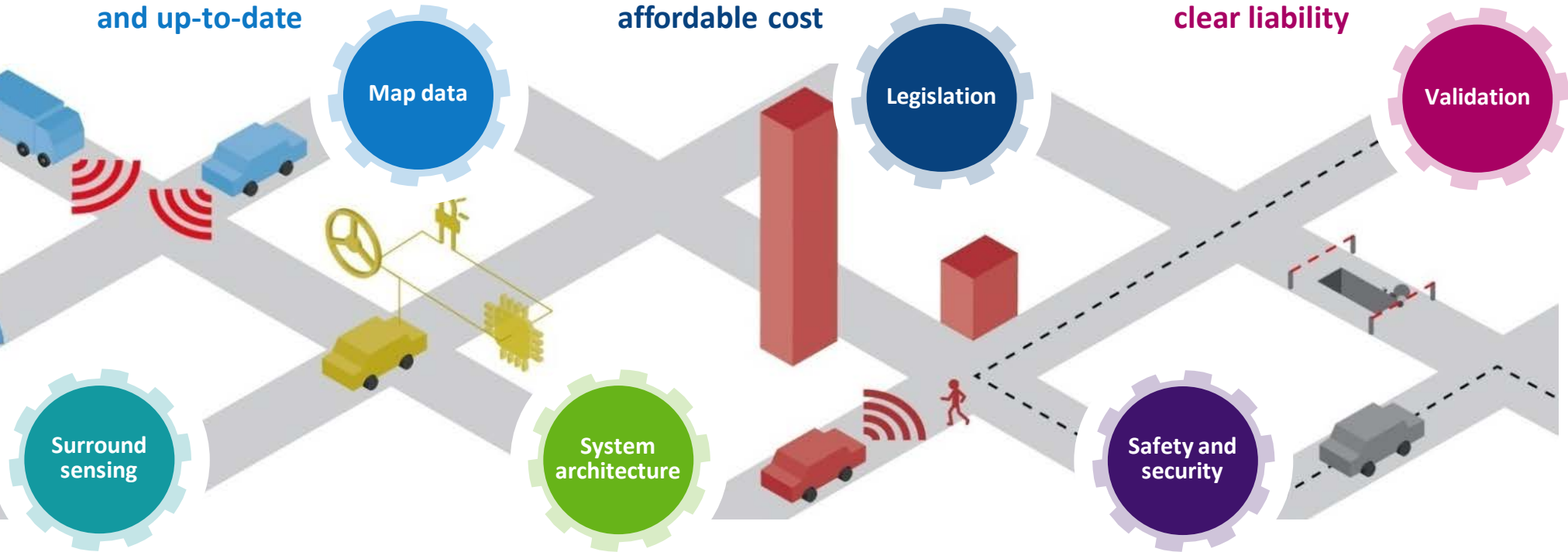
## Major challenges and enablers

**no accidents...**

**always precise  
and up-to-date**

**feasibility at  
affordable cost**

**global standards &  
clear liability**



**highly robust  
in all use cases**

**redundancies for sensing, ECU's &  
actuation required (fail operational)**

**protection against technical  
failure and deliberate attacks**



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# Connected

**~5 Million** cars already  
connected with BOSCH  
IoT Hardware & Software

**200+ Bosch**  
cybersecurity specialists

**Software Updates OTA**, as  
simple as with Smartphones





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# Connected

Community-based-parking





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# Shared

Sharing & Multimodality



# Individual Mobility



~ 300 km



500 km



1000 km



➤ Different Solutions for individual mobility needs

Electrified  
Automated  
Connected  
Shared



# FUTURE MOBILITY WILL BE



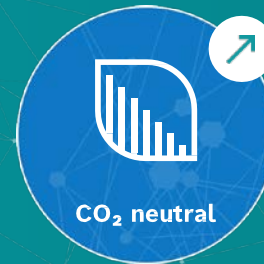
Safe



Efficient



Secure



Sustainable



Exciting



# THANK YOU

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