

The impact of connected vehicles on the motor insurance business

Motor Insurance Conference

Vienna - 5th April 2023

Strictly confidential - PTOLEMUS intellectual property



PTOLEMUS is the first strategy consulting & research firm entirely focused on connected mobility & automation

Strategy consulting services

Strategy definition

Investment assistance

Procurement strategy

Innovation management

Business development

Project management

Market research services

Off-the-shelf reports

Subscription services

Custom market research

Fields of expertise

Mobility services	Car pooling Car sharing MAAS	Micro-mobility Ride hailing Shared mobility	Smart parking Tax refund
Vehicle services	bCall eCall Fleet telematics SVT / SVR	Tracking VRM In-car Wi-Fi Parking	Navigation Speed cameras Traffic information
New energies	BEV EV charging Fuel cards	Fuel cells Hydrogen	PHEV Vehicle-to-grid
Usage-based charging	Car As A Service Electronic Toll Collection	Mobility-as-a-Service Road charging UBI / PAYD	Vehicle rental Vehicle leasing
Vehicle data & analytics	AI CAN-bus Crowd-sourcing	Data protection Driving behaviour OBD	Predictive analytics Remote diagnostics xFCD
Vehicle automation	ADAS Autonomous cars	Autonomous trucks Robo-taxis	Driverless Shuttles
Enabling technologies	Positioning (GNSS / WiFi / cellular) M2M / connectivity	Smartphones Sensors Telematics devices	V2X DSRC / RFID ANPR

We serve over 350 clients across the ecosystem of mobility

Analytics, maps & apps providers



Automotive OEMs & suppliers



Telematics solution providers



Device & location suppliers



Insurers, aggregators & assistance providers



Mobile telecom players



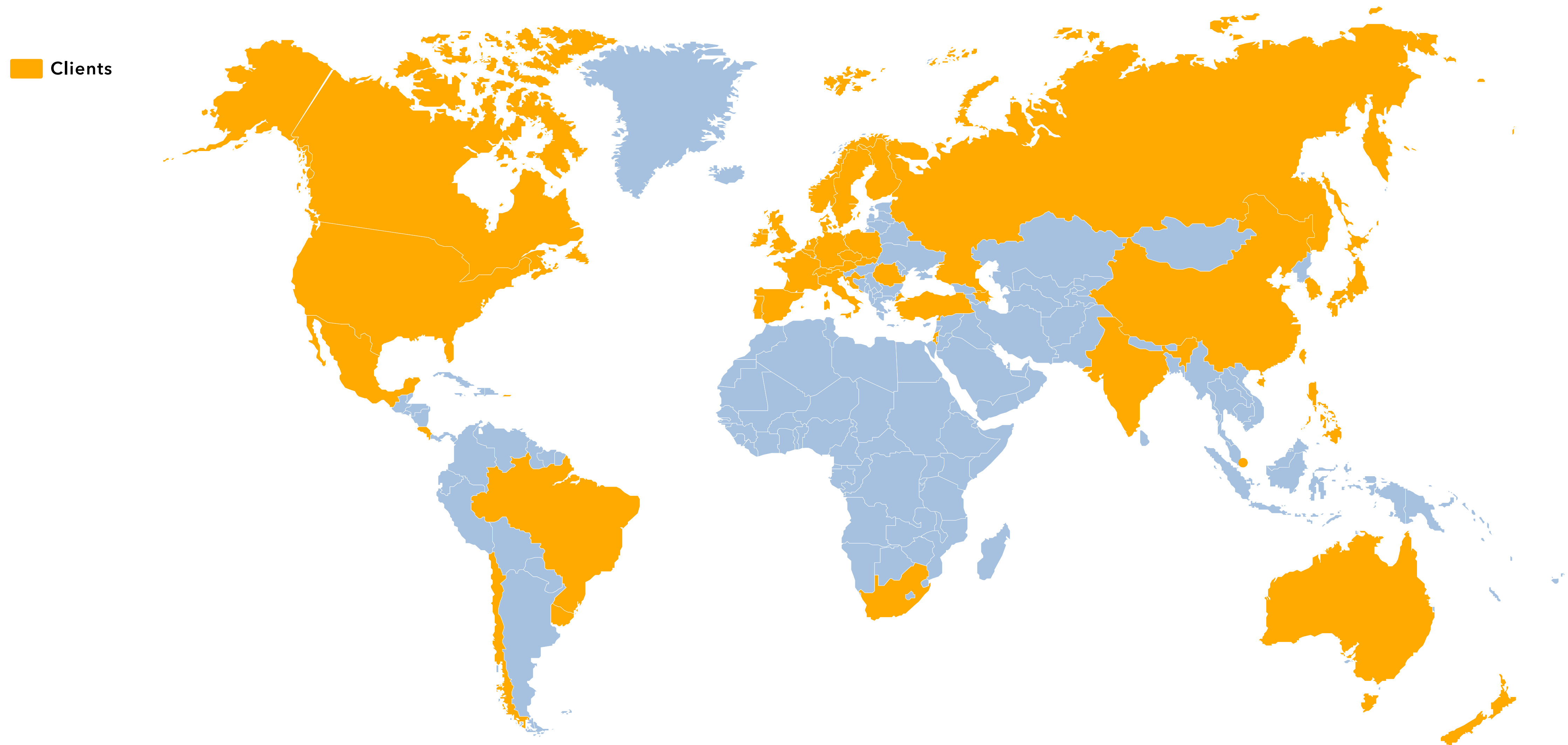
Fleets, tolling & ITS



Banks & private equity investors



Our team of consultants, experts and analysts with 12 nationalities serves our clients in 41 countries



Much of this presentation will leverage the content of our Connected Auto Insurance Global Study

AUTONOMOUS DRIVING



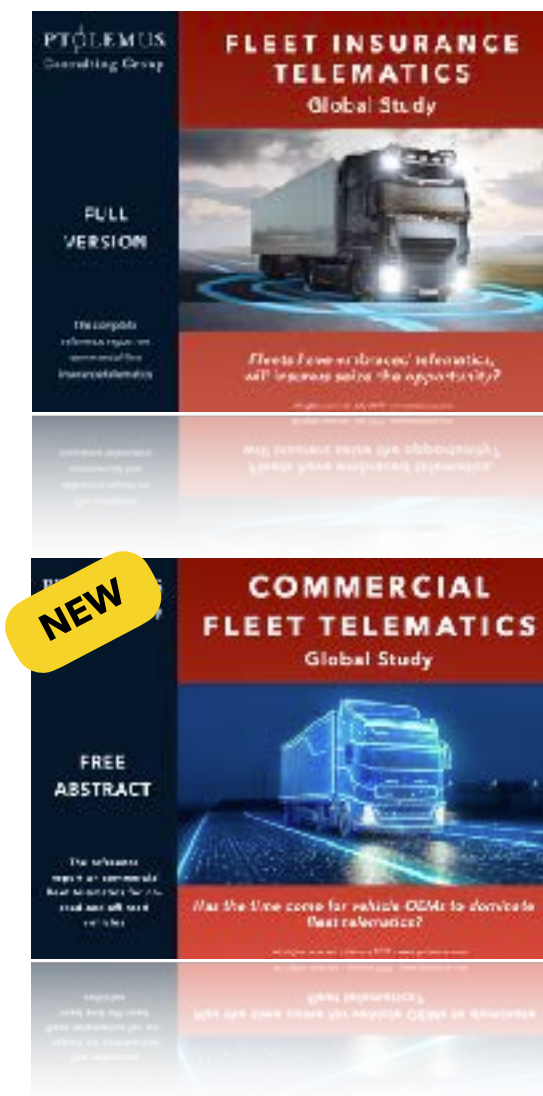
CONNECTED VEHICLE



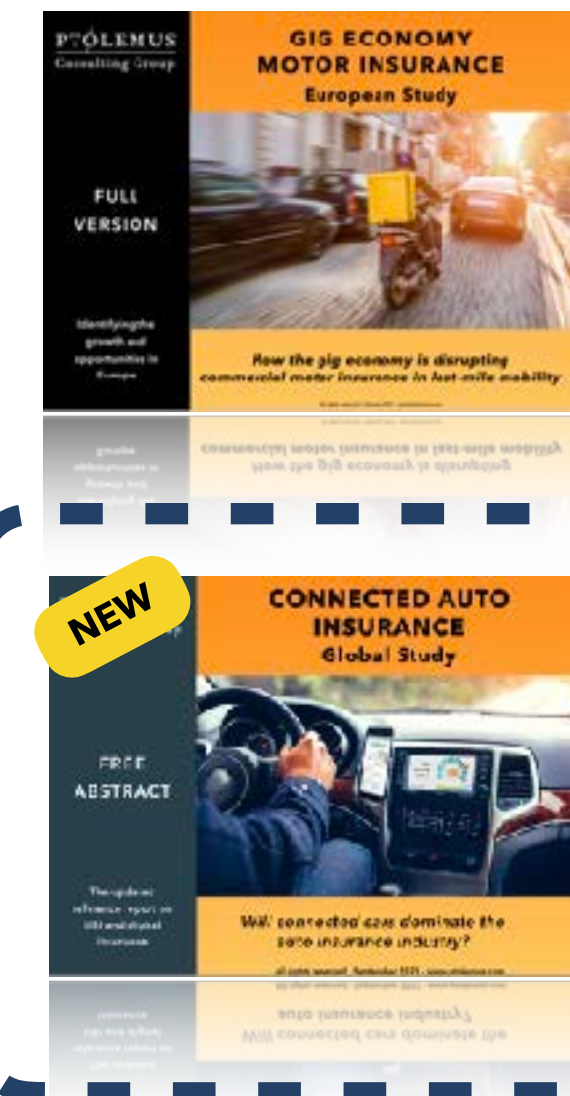
ELECTRIFICATION



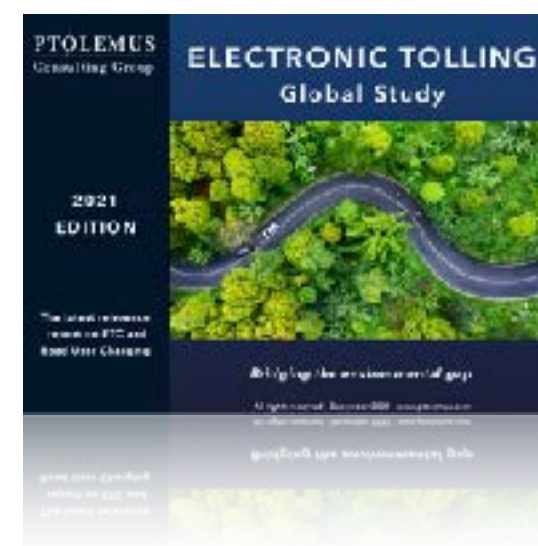
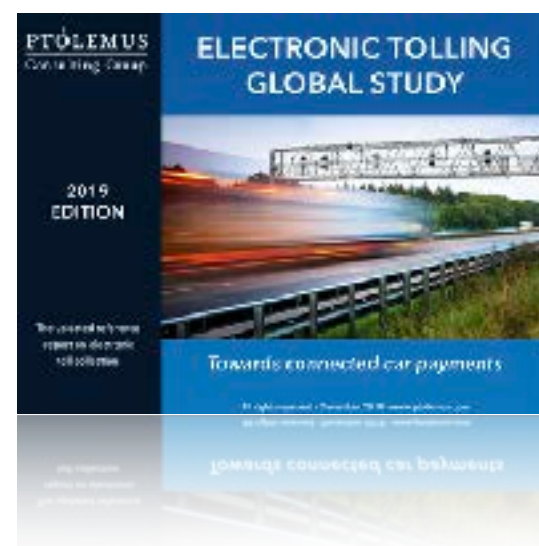
FLEET MANAGEMENT



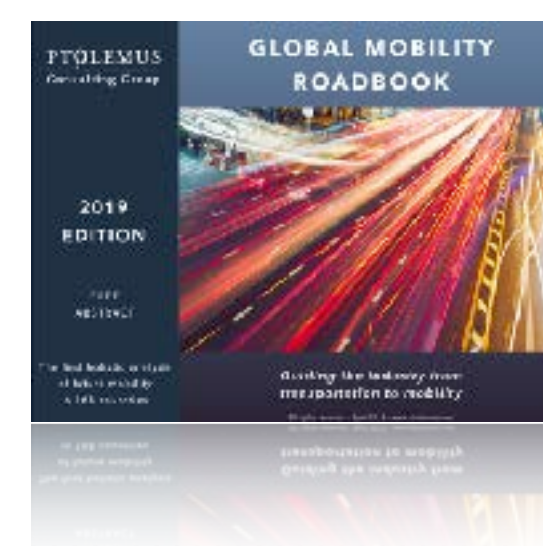
INSURANCE



ELECTRONIC TOLLING

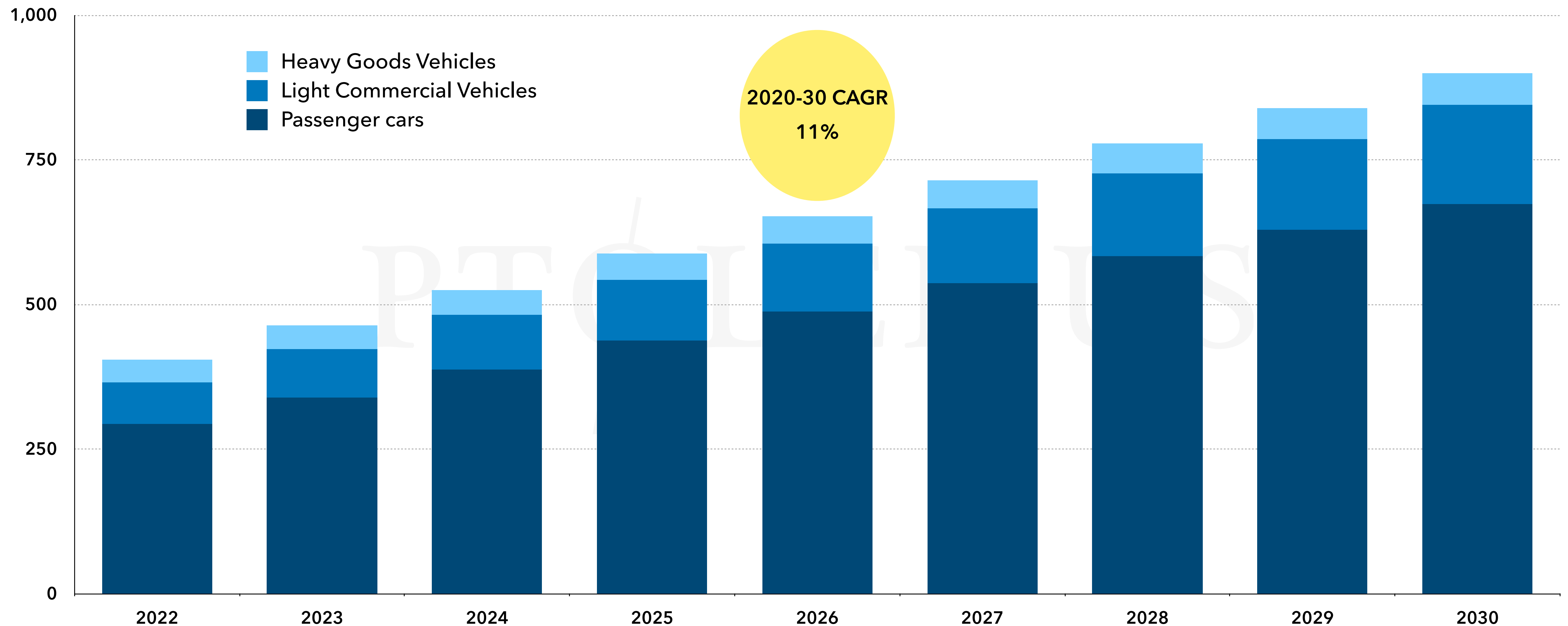


MOBILITY



With 900 million connected vehicles in use by 2030, we expect their growth to be 10 times faster than the vehicle parc

Number of connected vehicles in the world by category* (million)



Connected vehicles can transmit data from a fast growing number of sensors and receive data from the cloud

What is connected vehicle data?

Data generated by in-vehicle sensors

- From embedded systems or aftermarket 'telematics' devices
- Transmitted via (bi-directional) cellular networks (2G, 3G, 4G, 5G) to the cloud
- Cleaned, stored and analysed to produce insights, actions and services

Typical new cars can have 60-100 sensors embedded, from the oil level sensor to the airbag accelerometer.



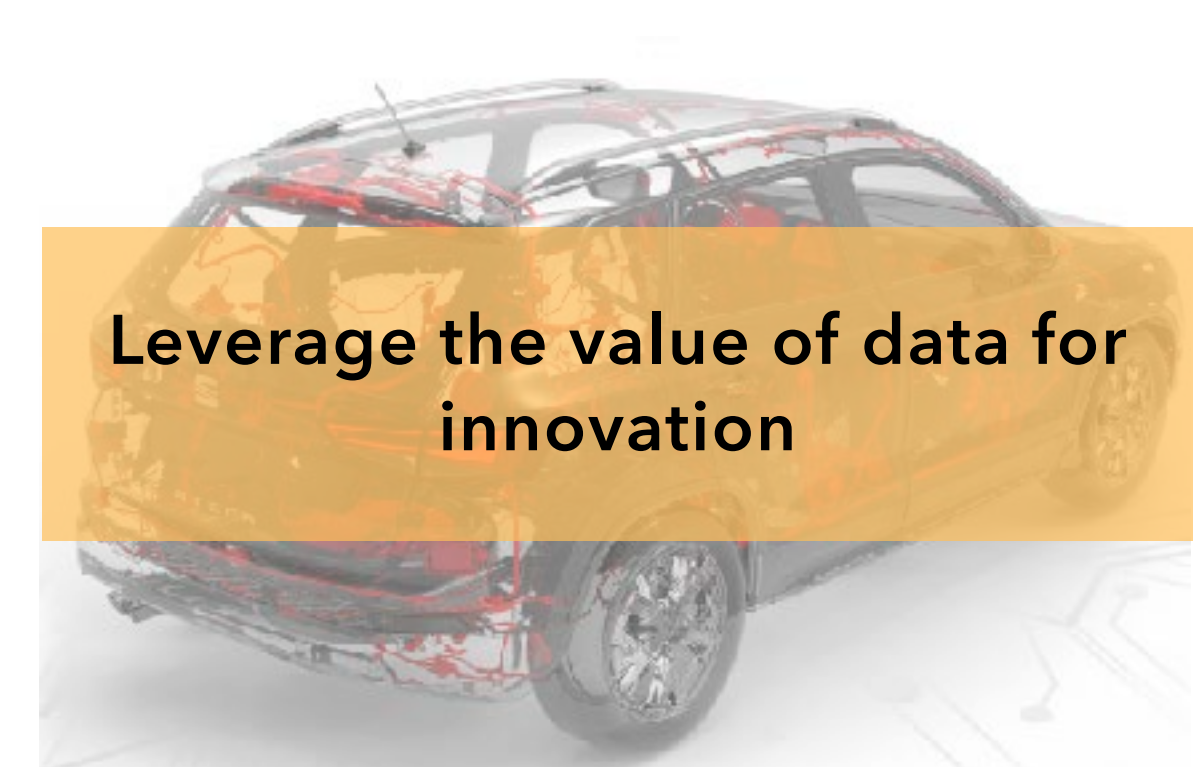
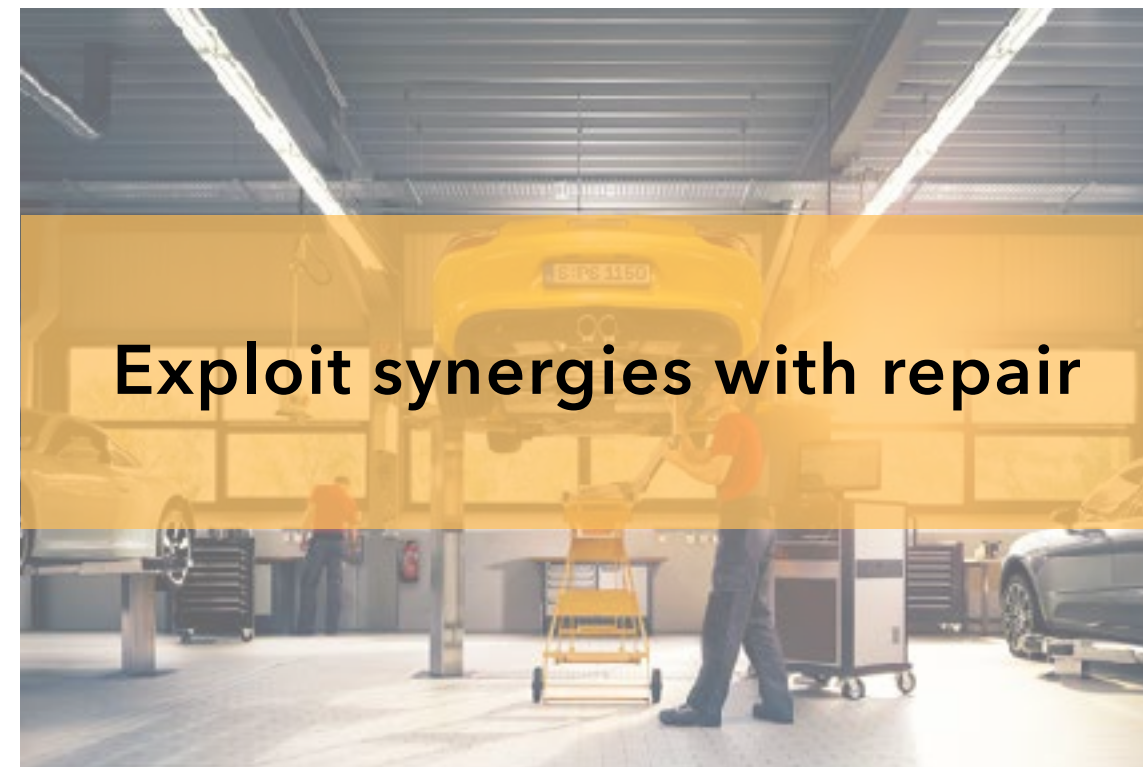
The OEM system(s) in the connected car is the one that can generate the largest number of data points

Potential vehicle datasets available

Static data		Dynamic data	
Driver data	Contextual data		• Exterior temp • Ambient pressure • Weather • Traffic • Road category • Time • Speed limit • Idling • Etc.
	Vehicle health data		• DTCs • Maintenance need • Battery level • Coolant temp • Light status • Oil temp • Oil pressure • Tyre pressure • Fuel level • Etc.
	Driver data (dynamic)		• Claims history • Fatigue • Health record • HoS • Distraction • Etc.
Vehicle data	Driving data		• Location • Speed • Mileage • Acceleration • Braking • Cornering • Crash • Etc.
	In-cab data		• Nb passengers • Navigation • Seat belts • Etc.
Fleet data	Transaction data		• Ship from address • Destination address • Invoice # • Order # • Product code • Commodity code • Product description • Quantity • Unit measure • Extended amount • Freight amount • Duty amount
Driver data		Vehicle data	
• Name • Age • Gender • Contact details • Motor vehicle records • Background check • Etc.		• Brand / Make • Model • Year • Body • VIN • Registration • Engine size • Power • Fuel type • Etc.	
Fleet data		Driver data (dynamic)	
• Fleet account address • Fleet manager • # of vehicles by type • Vehicle ownership • Company type • Etc.		• Claims history • Fatigue • Health record • HoS • Distraction • Etc.	

There are at many reasons why an OEM should have a connected insurance strategy

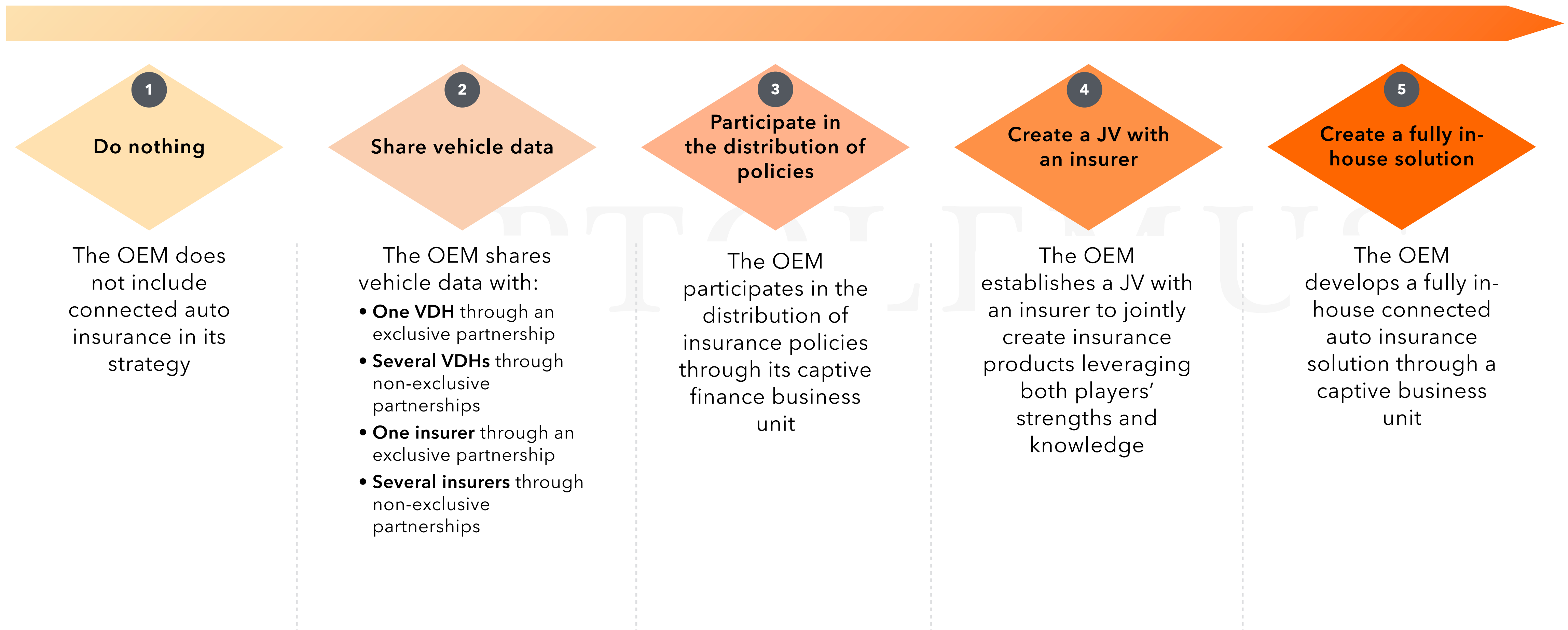
Reasons why an OEM should have a connected insurance strategy



Car manufacturers have 5 main options to choose from when considering their connected auto insurance strategy

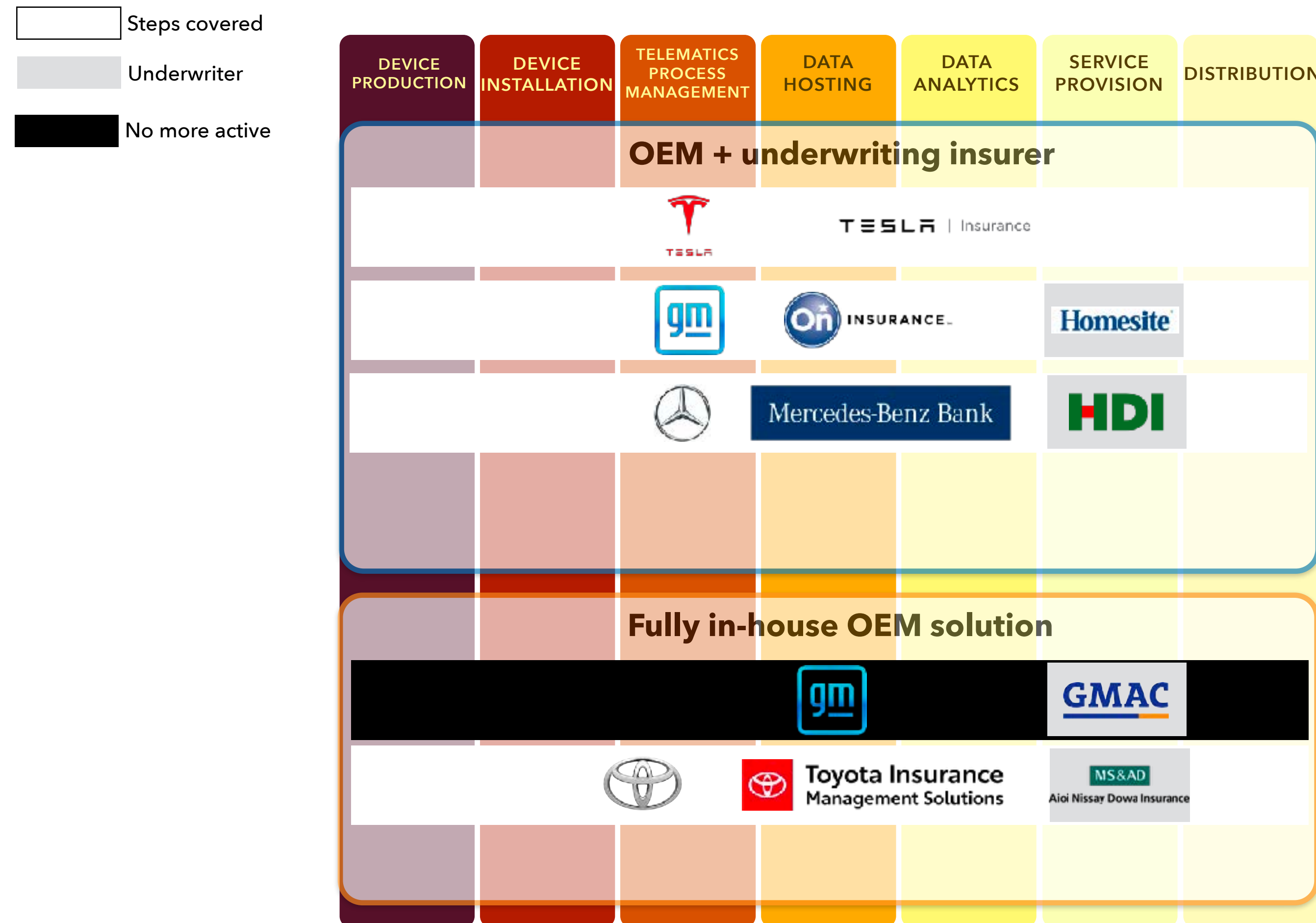
Strategic options for OEMs on UBI

Increased involvement in the insurance business



OEMs are launching connected insurance programmes either with their captive or with third party underwriters

Examples of OEMs covering all the steps of the value chain



- Creating an OEM captive insurance solution is not new...
 - GM with GMAC until its sale in the 2000s
 - Toyota since 1999
- What has changed is the ability to use connected vehicle data
- OEMs have entered the automotive insurance telematics market
 - In November 2020, **GM** launched **OnStar Insurance** in partnership with Homesite Group as underwriter
 - **Tesla** acquired 2 P&C insurance companies
 - There are now **over 60 connected insurance programmes** using line fitted systems

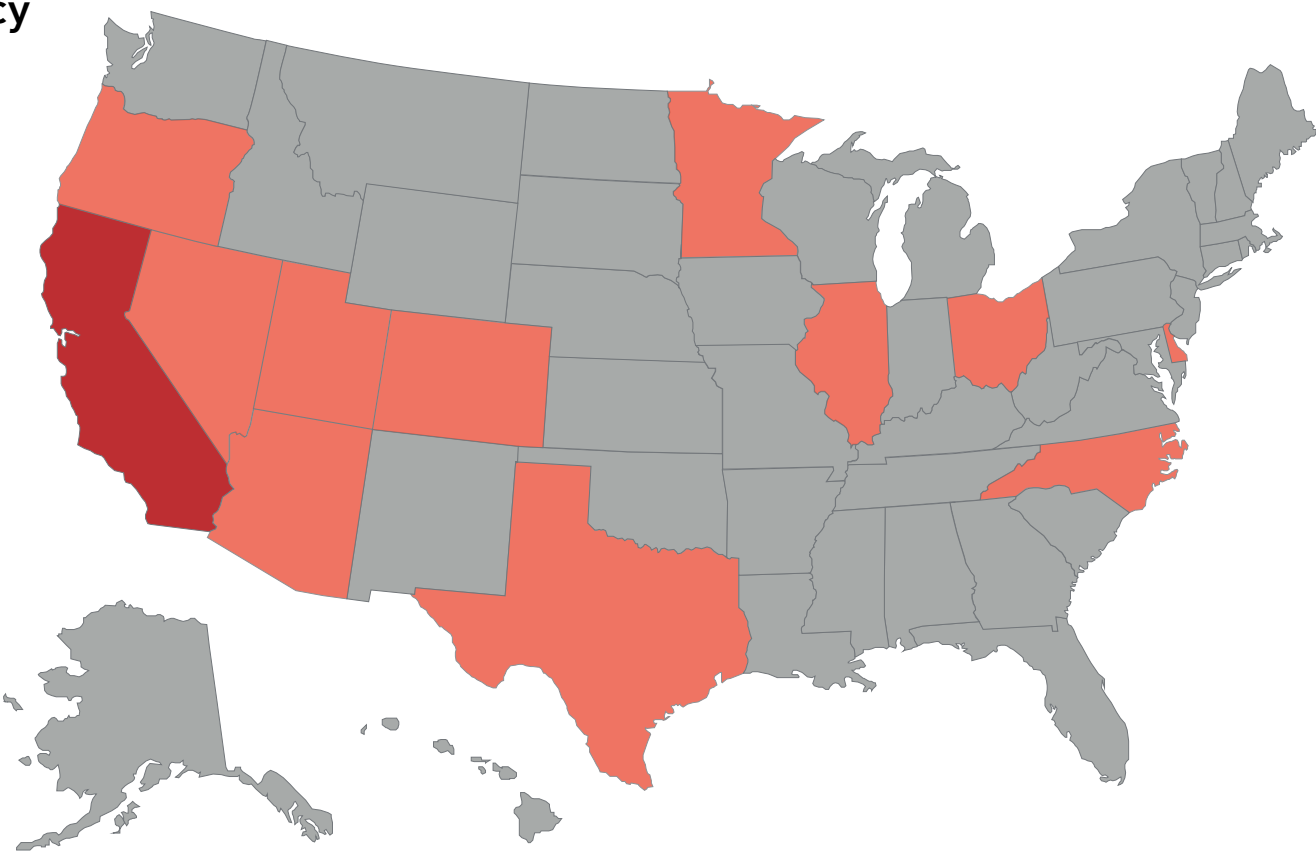
Tesla Insurance promises premiums lower by up to 30% and offers policies based on driving behaviour in the US

Value proposition

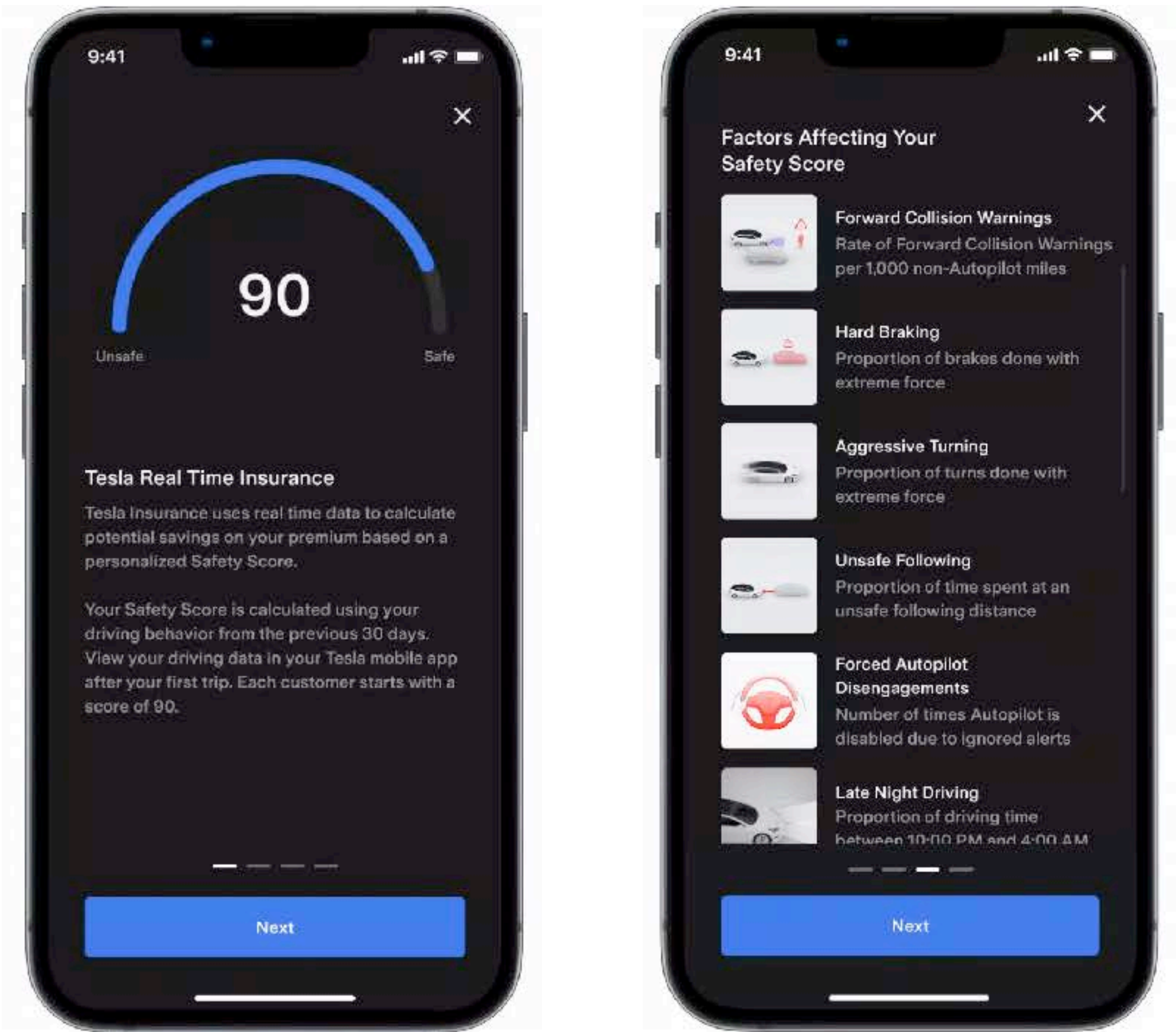
- Tesla offers PHYD insurance and claims management support for Tesla car owners
- Its rate calculations do not use factors such as age, driving record and credit score
- **The OEM claims that policyholders can benefit from discounts of up to 20-30%**
- **Tesla has declared that the cost benefits are due to its “unique understanding” of vehicle technology, safety features and repair costs**
- Tesla Insurance calculates a safety score between 0 and 100 based on actual driving
- Clients pay their premiums monthly

Tesla Insurance geographical footprint

- Traditional insurance policy
- PHYD insurance



Factors used to calculate the Safety Score

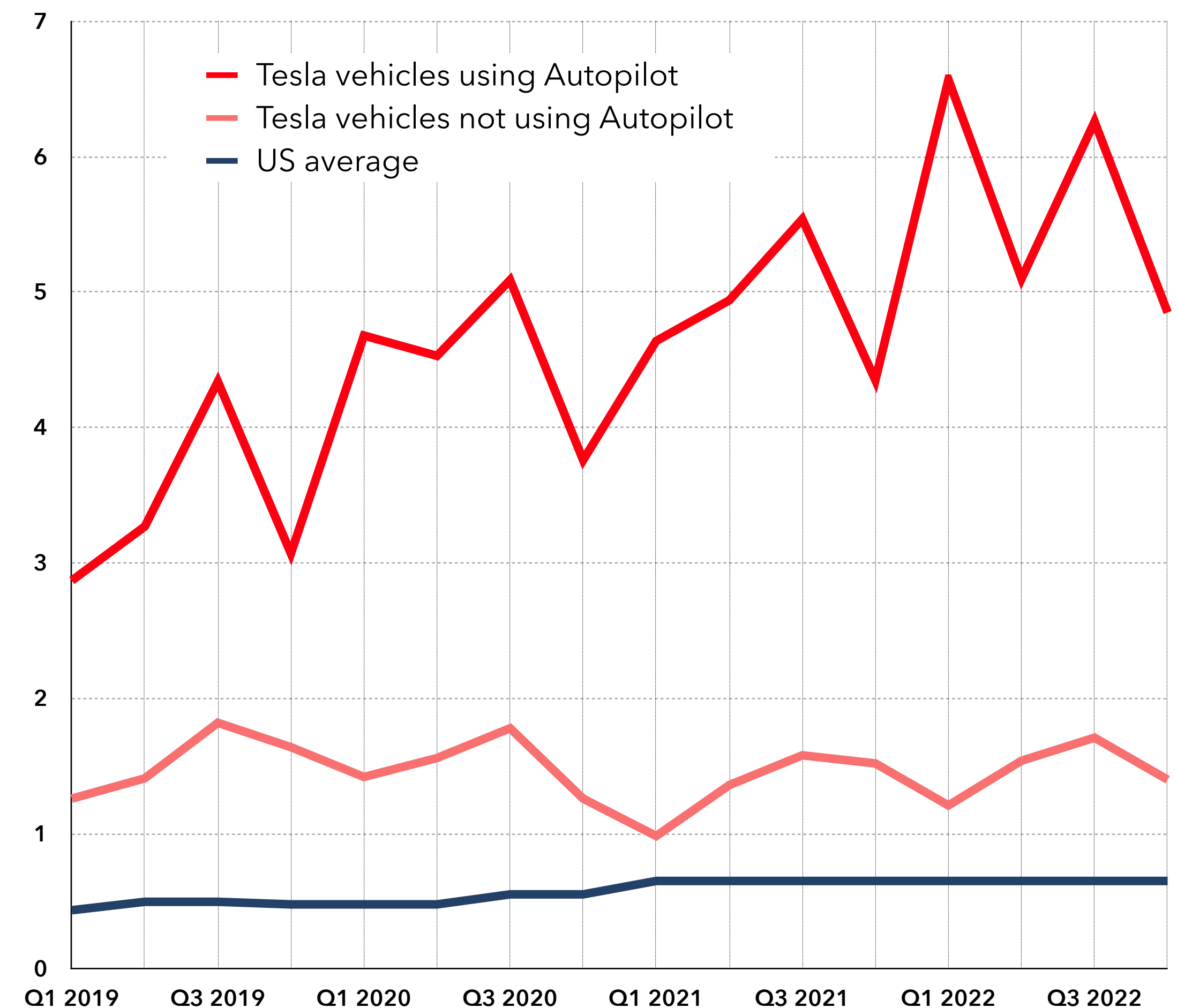


Tesla Insurance's customer uptake and crash statistics look impressive

Uptake

- Data for 9 billion miles driven with Autopilot engaged have been collected
- For drivers who are getting a Tesla safety score, the savings can run between 20% to 40%, and for the safest drivers, Tesla said the savings could be between 30% to 60%
- In addition, **17% of Tesla customers in states where insurance is available have signed up to Tesla Insurance, a figure that reportedly continues to climb**
- Tesla Insurance is at a \$300 million annual premium run rate as of the end of 2022
 - The business is **growing 20% a quarter**, which is much faster than its vehicle business

Miles driven by a vehicle before a crash occurs (million)

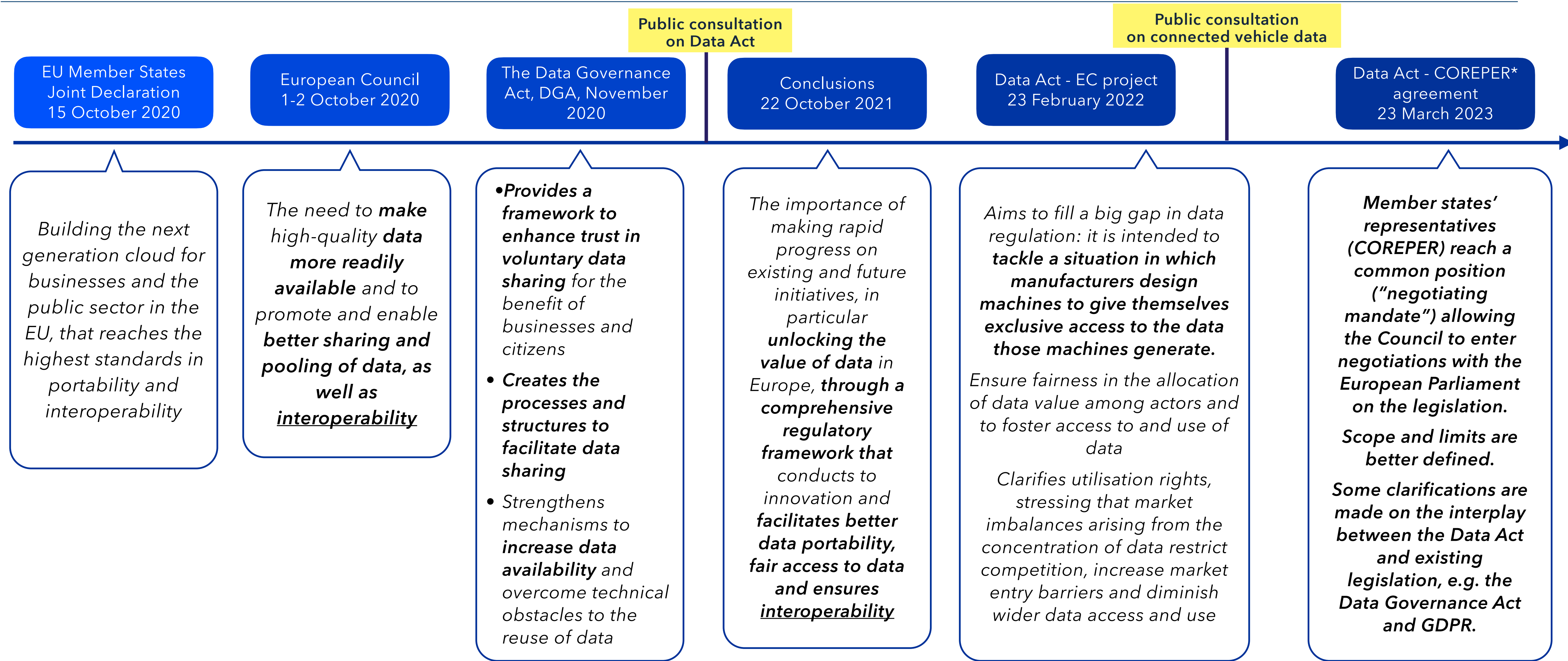


To access the data, the insurer needs to obtain driver consent (for personal data)

Challenge	Description	Solutions
Protection of personal data as per GDPR 	GDPR gives more rights to data subjects - Data subjects have the right to access, review, correct, and delete any of the personal data collected and processed by a data controller/processor - Consent must be requested in a clear and understandable manner from individuals	Personal data collectors must: - Think about why they are collecting personal data and collect the minimal dataset needed - Be transparent about what data is being collected and for what purpose - Gain (and regularly renew) consent from the vehicle users for data collection Personal data collection consent engines must be operated by OEMs, VSPs or VDHs: - Vehicle purchase contract - Vehicle service contract - Vehicle display - Smartphone apps - Etc.

European data strategy is now progressing fast

Key milestones of the European data strategy





The Data Act will open the gates to OEM data

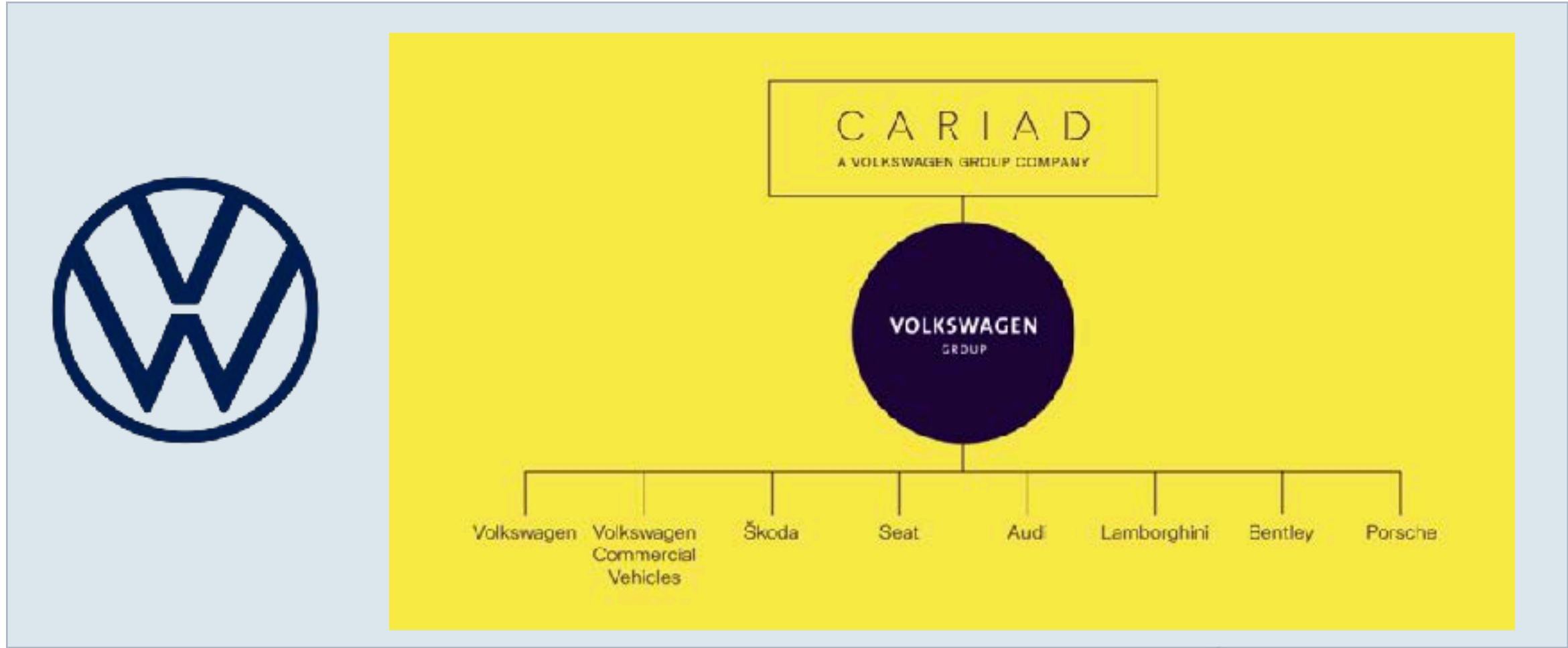
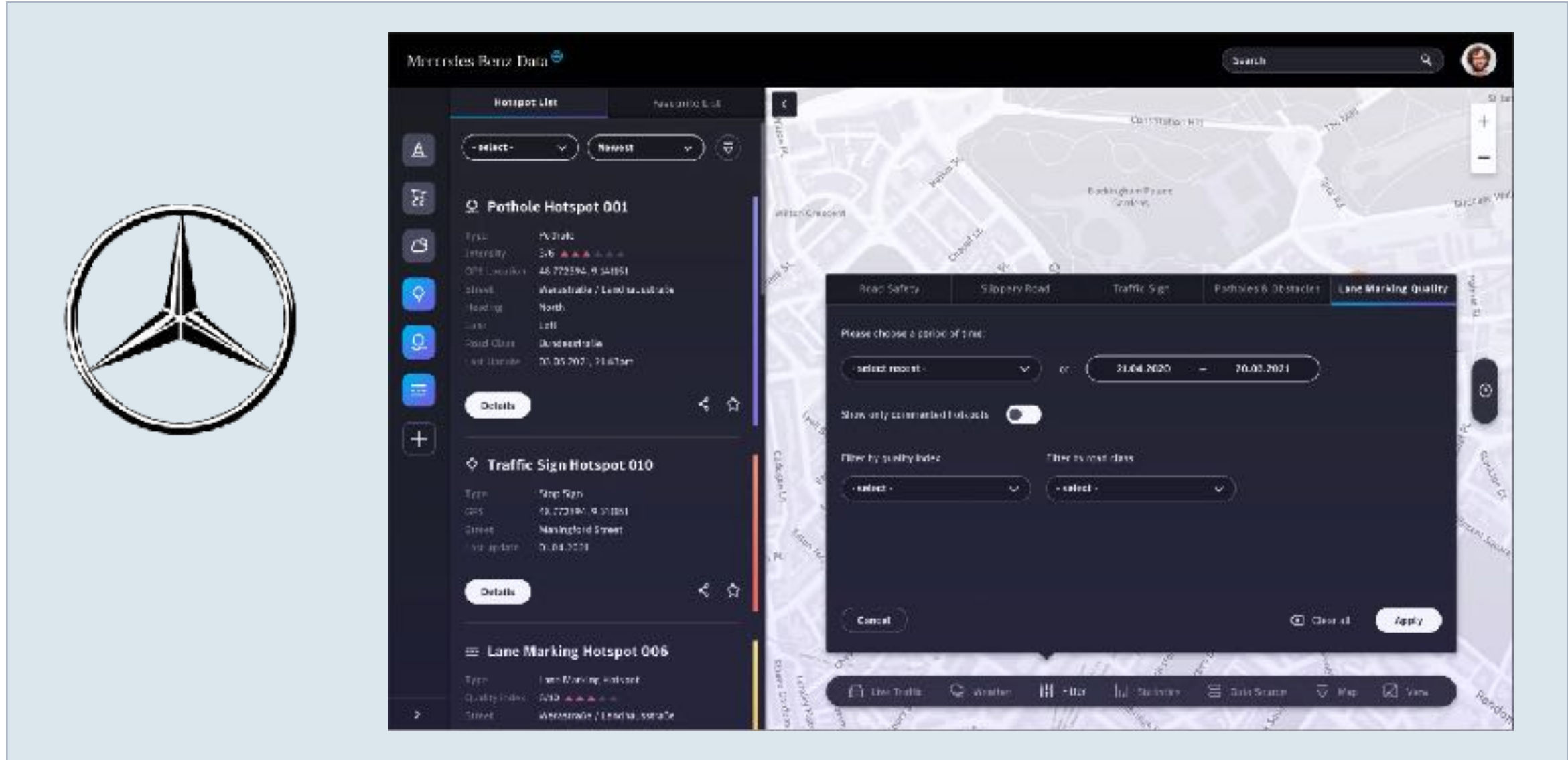
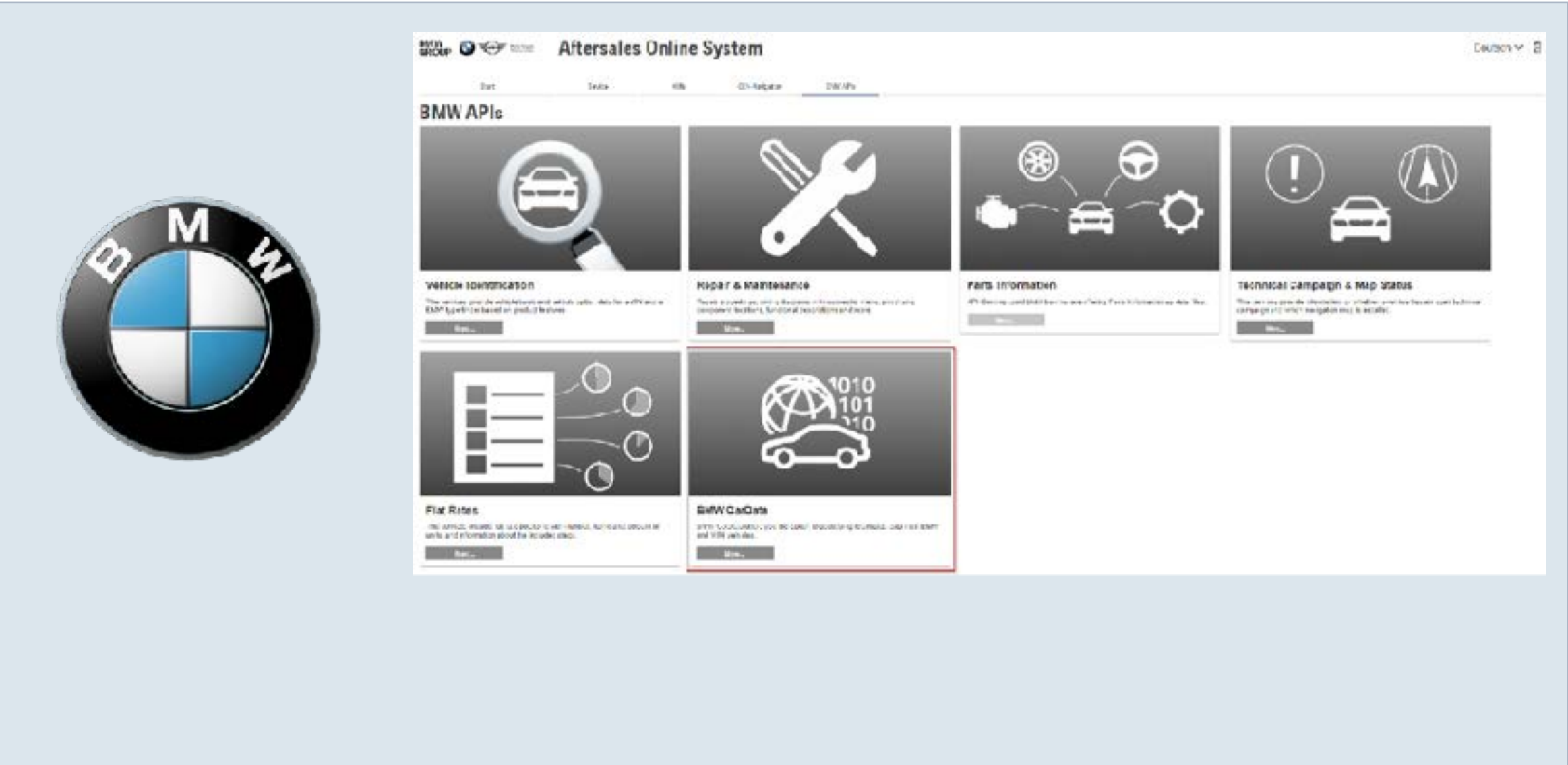
Key principles behind the proposed Data Act

Data Act - COREPER* agreement
23 March 2023

Common position (“negotiating mandate”) allowing the Council to enter negotiations with the European Parliament on the proposed legislation:

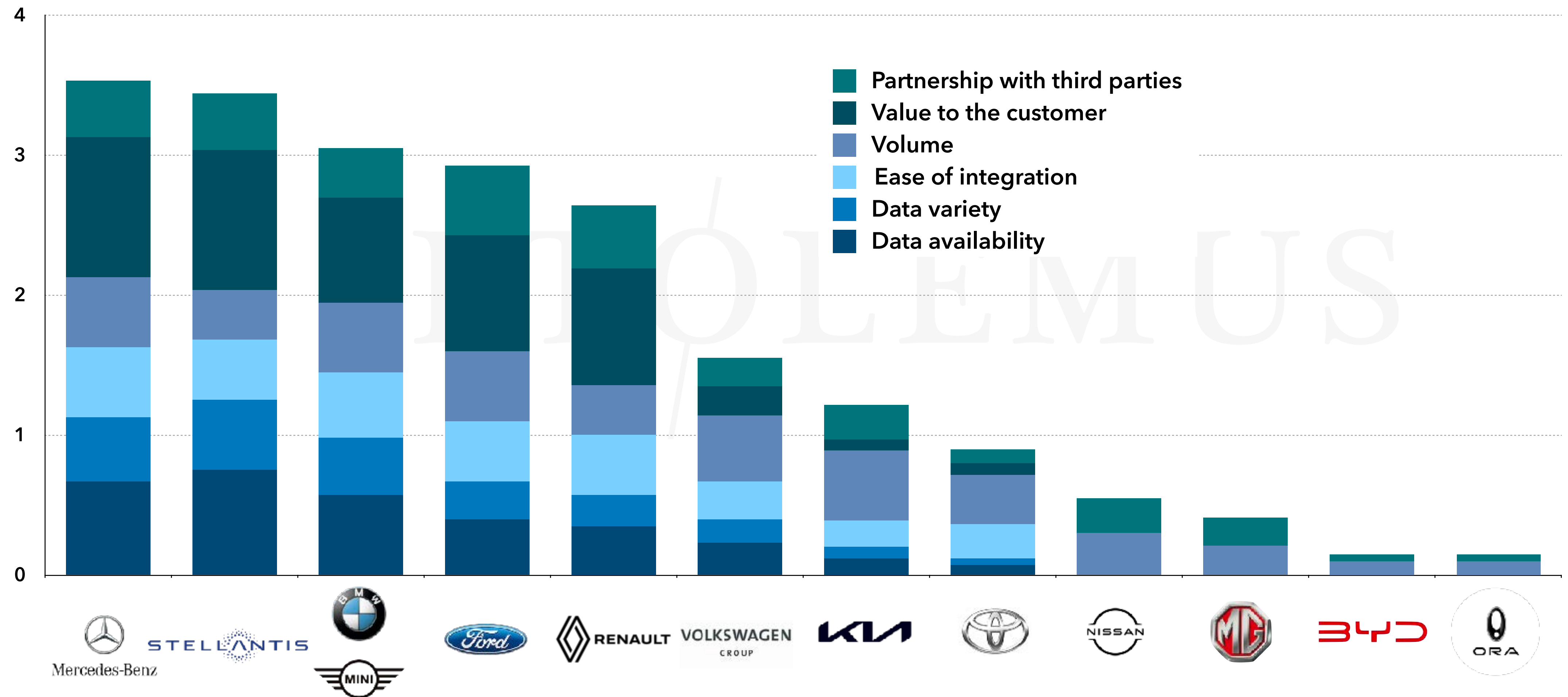
- Measures to **allow users of connected devices, ranging from smart home appliances to smart industrial machinery, to gain access to data generated by them, which is often exclusively harvested by manufacturers**
- **Measures to prevent abuse of contractual imbalances in data sharing contracts** due to unfair contractual terms imposed by a party with significantly stronger bargaining position
- **Means for public sector bodies to access and use data held by the private sector** that is necessary in exceptional circumstances, particularly in case of a public emergency, such as floods and wildfires, or to implement a legal mandate if data are not otherwise available
- **New rules allowing customers to effectively switch between different cloud data-processing service providers** and putting in place safeguards against unlawful data transfer
- **Measures to allow users of connected devices, ranging from smart home appliances to smart industrial machinery, to gain access to data generated by them, which is often exclusively harvested by manufacturers**
- **Measures to prevent abuse of contractual imbalances in data sharing contracts due to unfair contractual terms** imposed by a party with significantly stronger bargaining position

Each OEM has developed its own approach to build its cloud solution, generally at group level



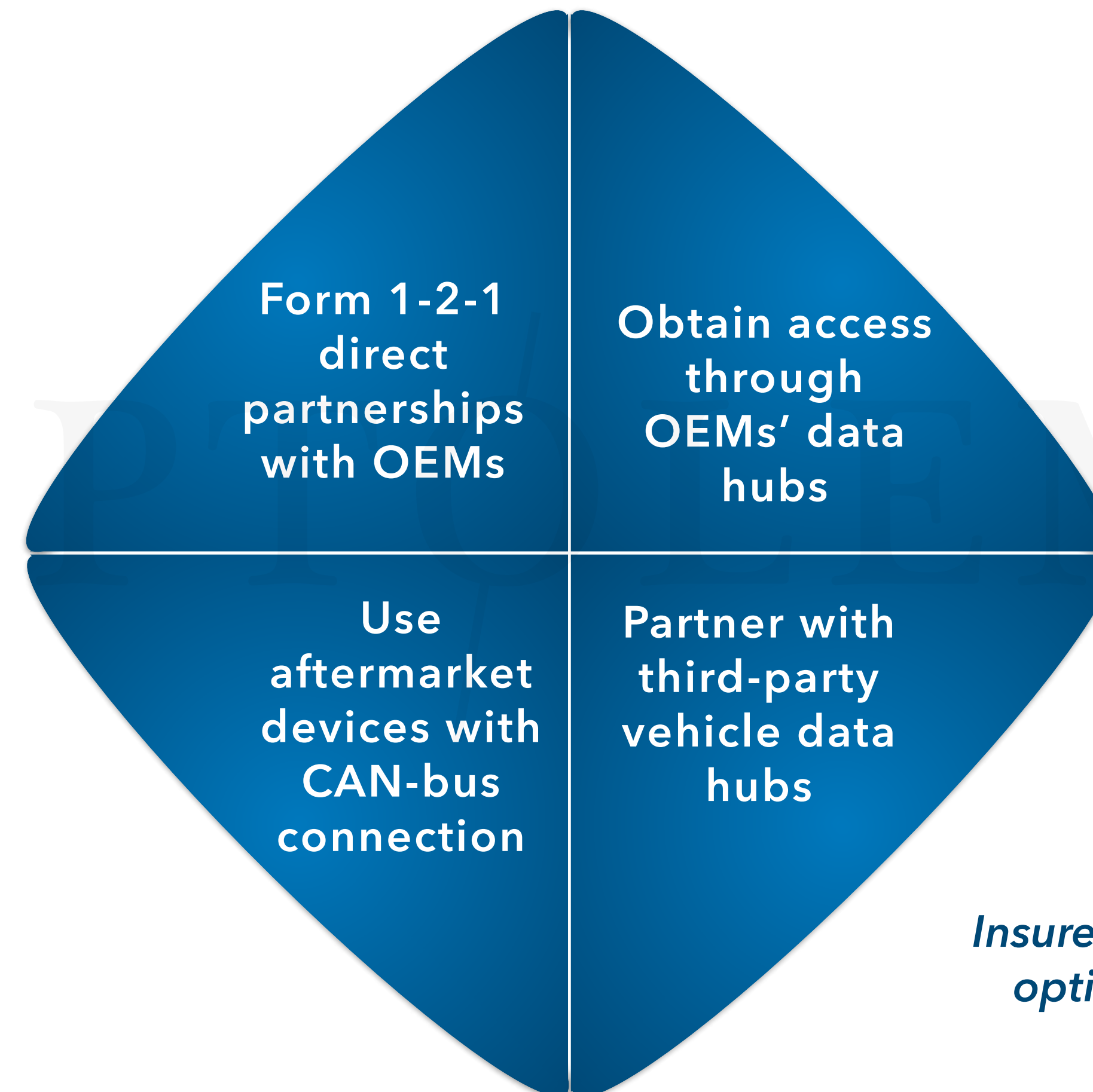
Not all OEMs have reached the same level of data openness

Ranking of OEMs' data sharing maturity and openness



Insurers have 4 main strategies to access car data

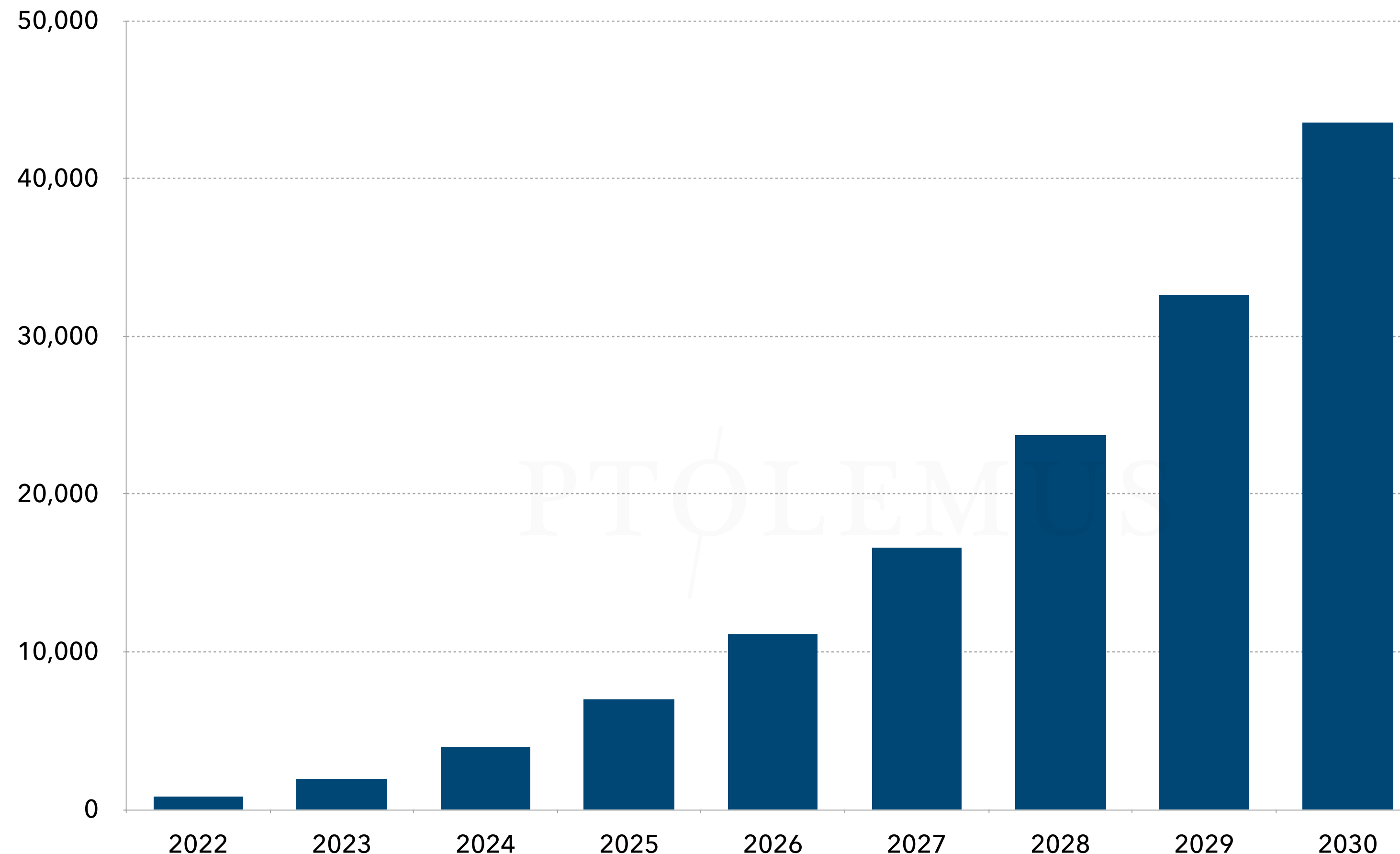
Potential insurer strategies to collect vehicle data



Insurers can chose multiple options simultaneously

We expect over €40 billion in insurance revenues generated from connected car data hubs in 2030

VSPs revenues generated through VDHs by service (€ million)



Key take aways

- **Today most connected auto insurance programmes are in the US**
 - 19 programmes identified
 - All major OEMs have at least one programme, including GM, Ford, Toyota and Tesla
- In Europe, access to connected car data remains relatively challenging
- But there are **already 22 connected insurance programmes in Europe**
- While most of them are OEM-sponsored, insurers could provide policies based on connected car data, for example by using Vehicle Data Hubs

Connected vehicle insurance will move from an option to the standard of auto insurance

Connected vehicles are everywhere... and data is coming

- The vast majority of European cars will be connected by 2030
- Regulation is coming to create a level playing field
- But OEMs are ahead

Tesla appears about to revolutionise the car auto insurance business too

- PHYD programme from the start
- 17% uptake
- Lower claims ratio

Insurers cannot stay idle and should develop a connected vehicle strategy

- Choose data & consent collection model
- Integrate connected vehicle in customer experience
- Identify areas of differentiation (risk scoring, claims management, cross-line bundling, etc...)



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PTOLEMUS' research business unit also publishes landmark reports and market forecasts

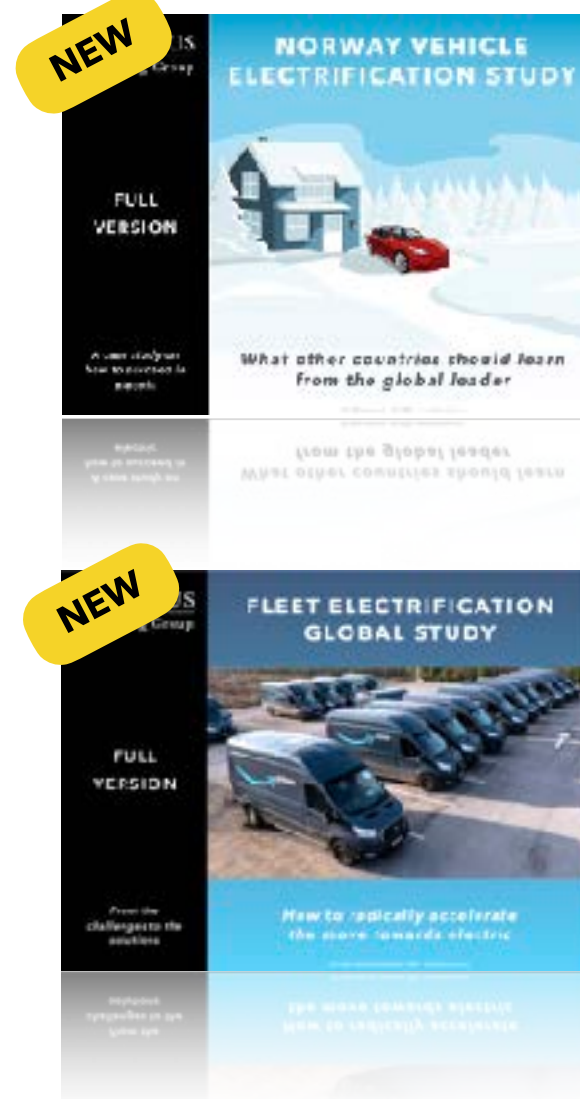
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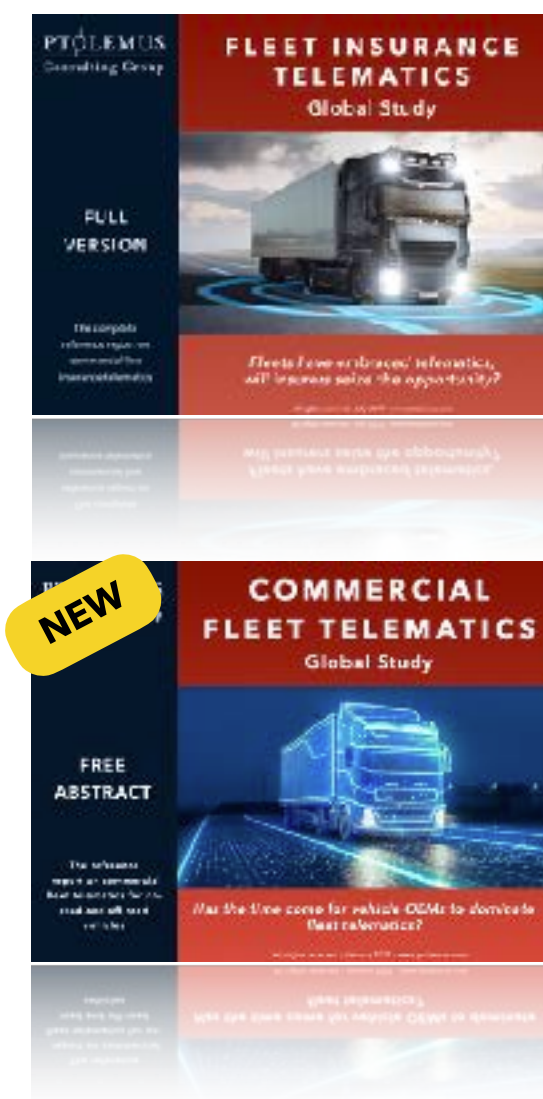
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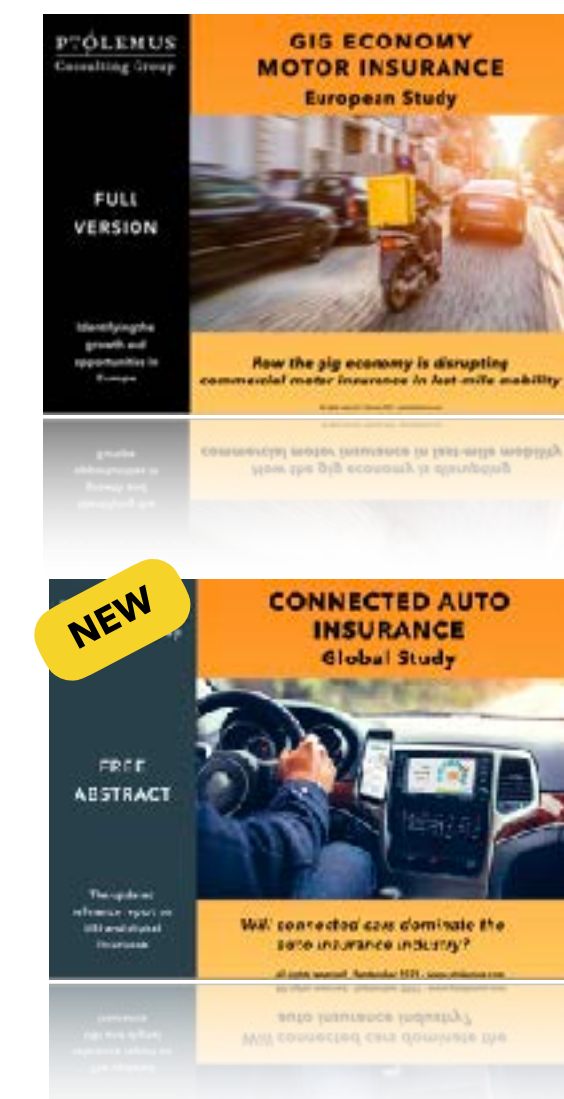
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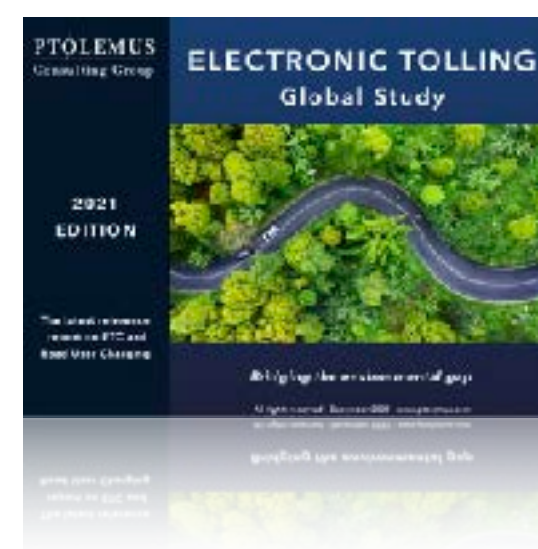
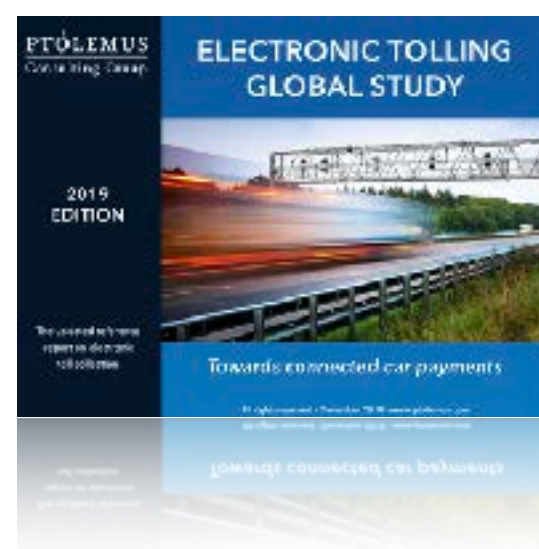
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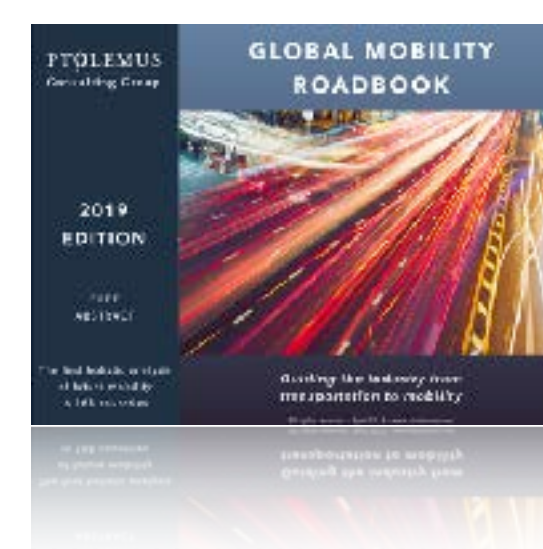
INSURANCE



ELECTRONIC TOLLING



MOBILITY



Notes: 1. Most of our reports come with bottom-up 2020-2030 market forecasts for 18 regions
2. To receive all our reports & other research, a subscription model exists

We have advised many of the world's largest insurance and assistance companies on their connected & digital plans



A unique experience of digital and connected insurance

