



## Future of Sales and Aftersales

Impact of current industry trends  
on OEM revenues and profits  
until 2035

Germany



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# Preface

The German automotive industry is on the cusp of a monumental transformation.

Readers only need to glance at the headlines to see the grim future some are predicting for the industry. Indeed, various interest groups are leading the debate on this issue for now, particularly as the sector employs more than 830,000 people and generates more than 5% of German GDP.

Obviously, there are a lot of questions people should be asking in Original Equipment Manufacturer (OEM) and automotive supplier boardrooms, dealerships and government offices across the country:

Will OEMs be able to compete at eye-level with tech players to create cutting-edge technologies and services? The R&D pipelines of industry giants, for example, are looking very promising indeed with new battery electric vehicle model launches to come. Will this effort be enough to have an impact given the potential for change in the mobility environment?

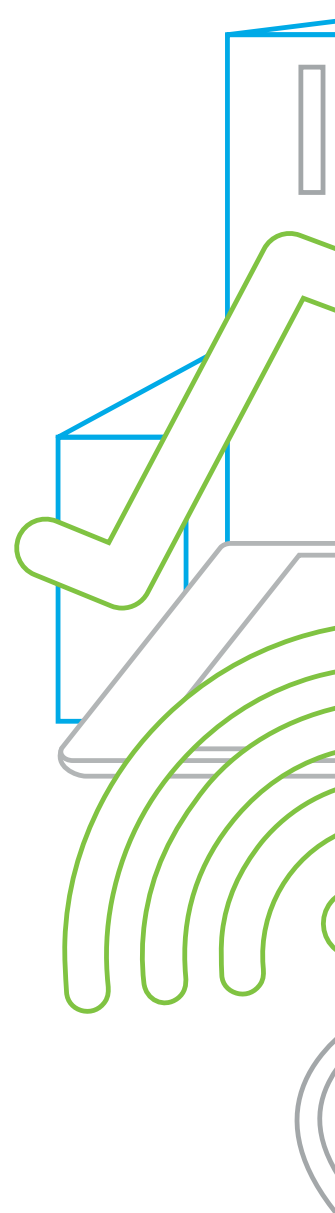
Do OEMs have a clear understanding about the future of mobility? Will the consumer dramatically change his or her behavior in favor of shared mobility or stick to car ownership in the future? How important will fleet sales become? The current wave of consolidation in the shared mobility industry is a sign of success. Should OEMs push even harder into this area?

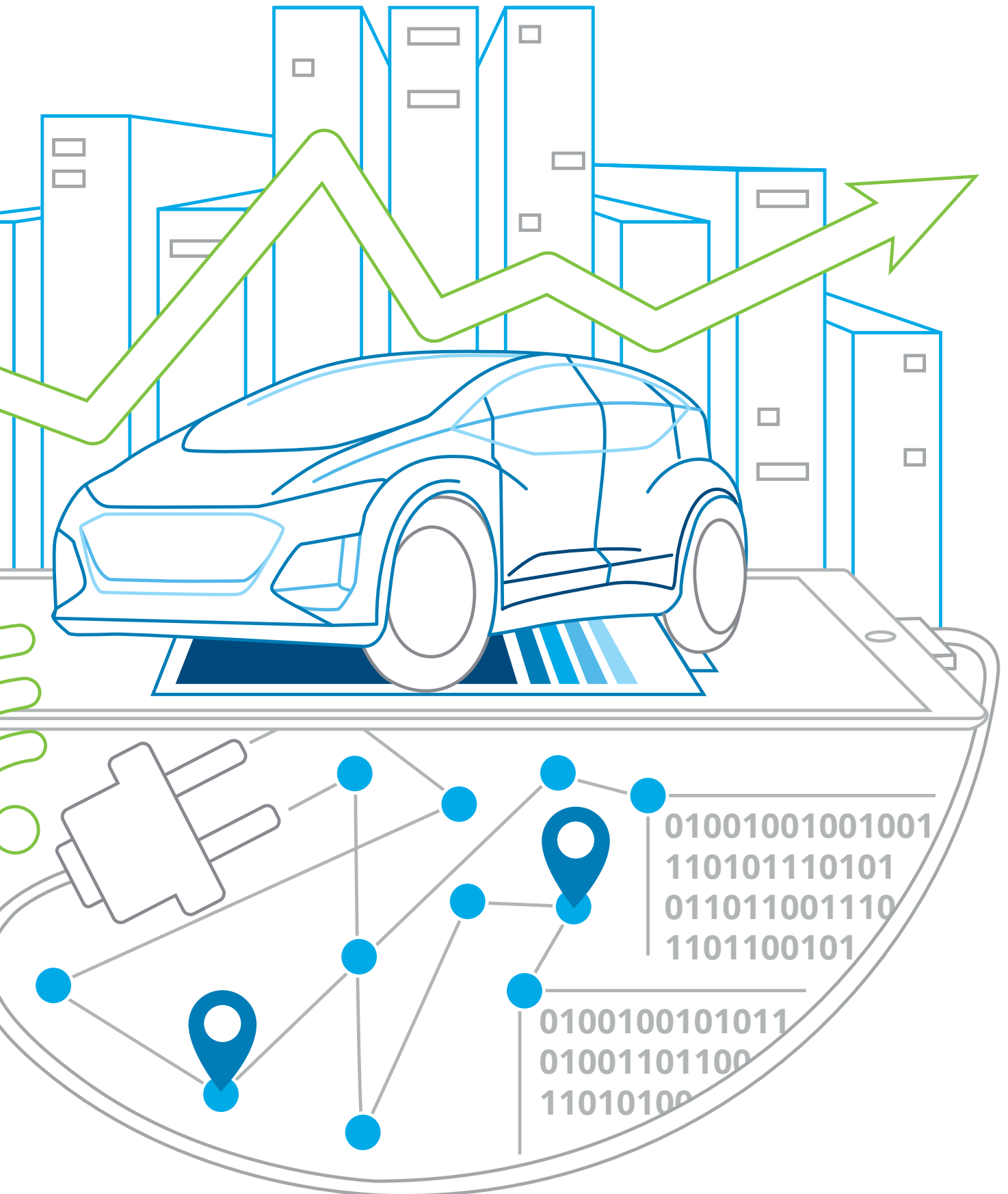
What impact will connected customers have on the existing OEM retail network with approximately 36,700 dealerships and service partners in Germany? Does the future of vehicle retail lie online, or will consumers stick to the tradition of purchasing at stationary retailers? What will be the effect of alternative drivetrains on OEMs' and retailers' aftersales business?

With these trends potentially closing doors in the traditional automotive space, new business opportunities could arise in a reshaped mobility industry. Should OEMs move into these innovative markets, leverage development efforts of third parties, forge alliances or stay out of it entirely?

The goal of this study is not purely to provide a clearer picture of current trends and their implications for the future of vehicle sales and aftersales from now until 2035; it also aims to identify key challenges and offer approaches for OEMs navigating the dense fog of uncertainty that we call the future.

We hope that you will enjoy reading our insights and thoughts on the future of the automotive industry and that you might derive value from our findings for your decision-making process.





# Introduction

## Motivation for this study

A wide variety of existing publications and opinions have addressed the future of automotive sales and aftersales.

In today's media landscape, there is a lot of ambiguity about the industry trends expected to emerge. In addition, the opinions in publications are too often narrowly cut - without considering all OEM business segments as a whole.

What we are lacking is a holistic treatment of industry trends and their impact on the OEM business. In our view, we urgently need not only qualitative – but also quantitative – analyses to help take profound and cohesive decisions.

## Aim of study

The aim of this study is to help decision-makers master the challenges of the future by introducing the right measures today.

We therefore aim to create a framework that provides comprehensive but nuanced projections of trend effects and lays the foundation for a precise derivation of required priority actions.

A comprehensive analysis will encompass both traditional and new business segments in automotive sales and aftersales, taking revenue, profit pool and sales channel implications into account.

We believe that a truly nuanced approach to the future would never rely exclusively on a single possibility of trend emergence. For us it is of utmost importance to create a framework that is valid in different future scenarios (that are more or less disrupted by industry trends) and for OEMs with different strength and capabilities. We therefore strive to provide a flexible approach that challenges one-sided assumptions and produces a multi-dimensional vision of the future.

## Scope

The geographic market under consideration in this version of our study series is Germany.

In terms of products and services, our study will focus exclusively on passenger cars and services associated with passenger cars. We also factor in light commercial vehicles, but only in relation to autonomous mobility services like ride-pooling and robo-shuttles.

This study's findings look at the downstream value chain and highlight how industry trends will impact sales networks.

In terms of the timeframe, we forecast industry trends and their effects up to 2035. In our analysis of emerging trends, it became evident that certain industry developments are expected to kick in between 2030 and 2035 in particular. We felt it was crucial to include this time span, especially in view of the massive transformation that OEMs urgently need to introduce in response to those trends.

Fig. 1 – Overview of signposts



# Study design

Fig. 2 - Overview of study design

## 1. Definition of a proxy OEM

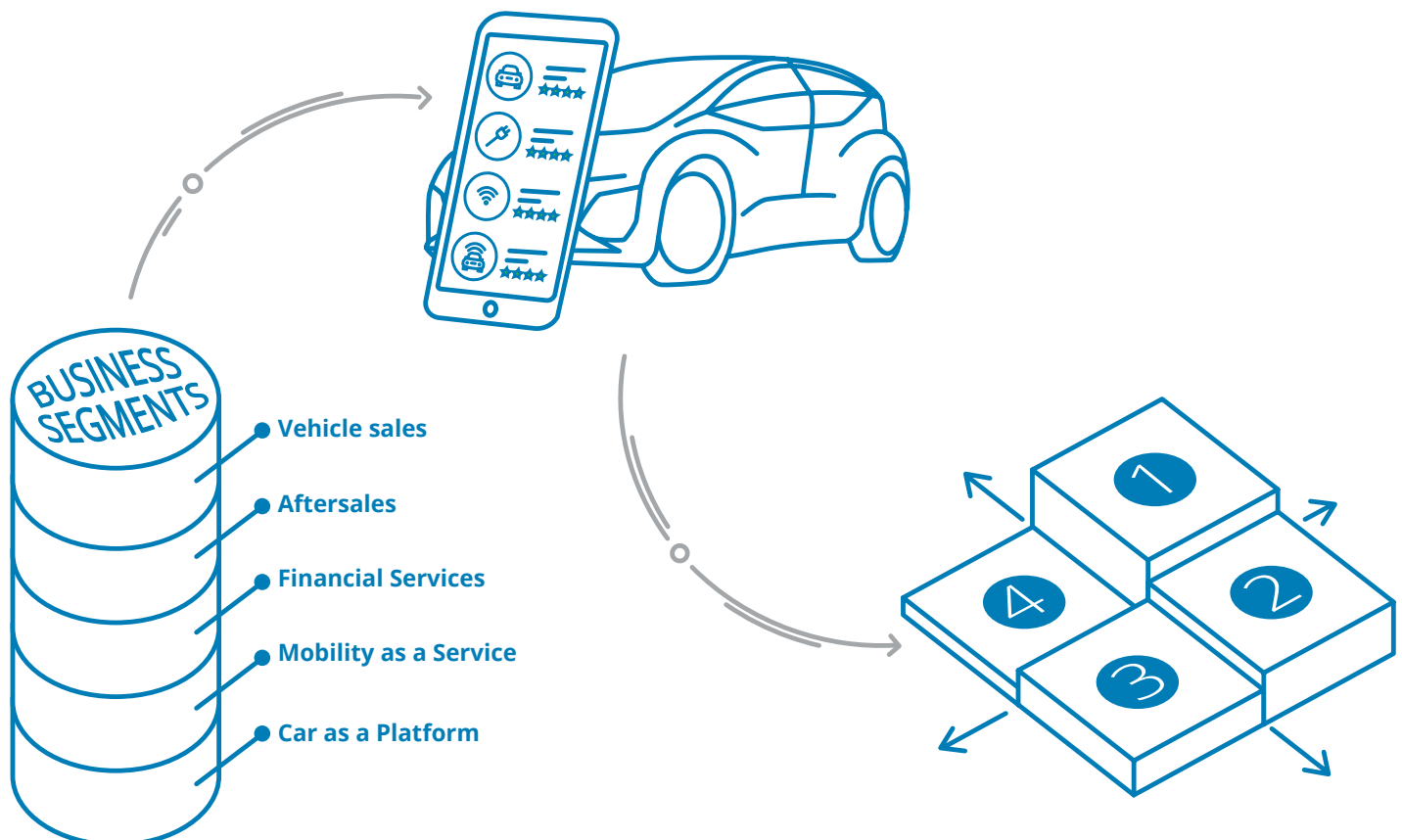
As a first step, we define an OEM to serve as proxy in our models for the future of automotive sales and aftersales. We define an OEM by its business segments and classify its size in terms of revenues and profits (contribution margin). The fleet mix and vehicle segment sales are additional classifiers for the size and structure of the OEM

## 2. Trend analysis and forecast of industry drivers

For each automotive industry trend, we forecast a base case and a disruptive case of trend emergence. This reflects different manifestations of consumer, business, technological and regulatory forces and lays the foundation for a nuanced assessment of trend effects

## 3. Identification of "future states" as strategic option spaces

We present a differentiated perspective of future industry effects based on two scenarios of trend emergence. Beyond that, we distinguish between two degrees of future OEM dominance over its competitive environment, resulting in four possible future states in 2035



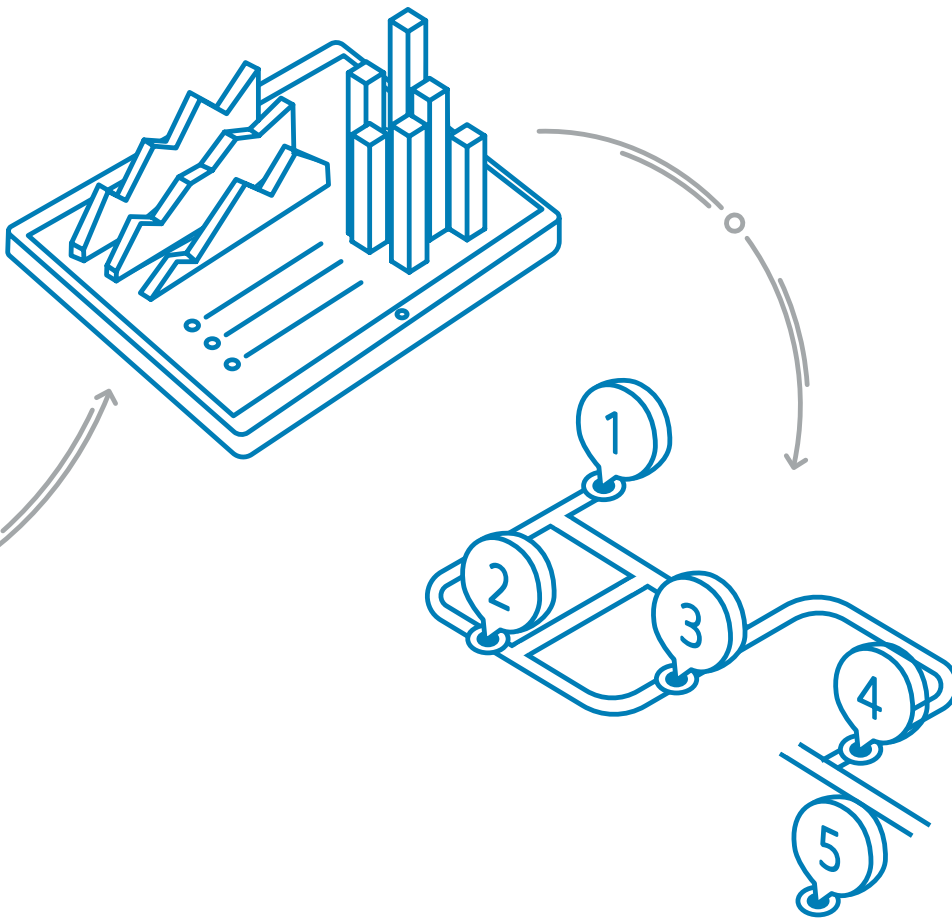


#### 4. Qualitative and quantitative evaluation across business segments

In this chapter, we go through each business segment to show how trends affect these businesses qualitatively and quantitatively on a granular revenue stream level within future states. The results shown are the output of a flexible tool to forecast revenue and profit pool developments

#### 5. Identifying priority actions for OEMs

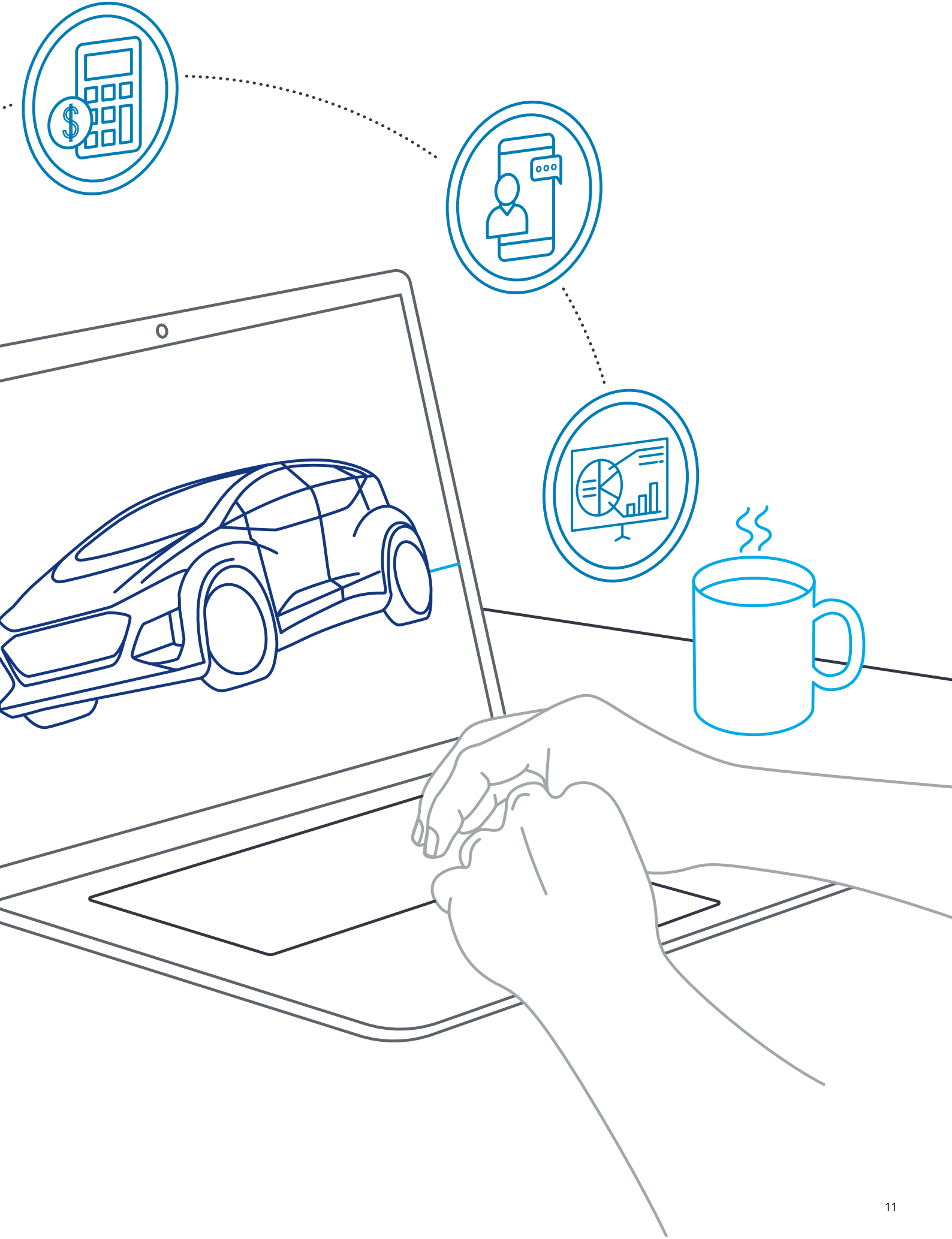
In a last step, we highlight concrete actions OEMs need to prioritize in order to succeed in the lead-up to 2035. The priorities we have identified rank high in both urgency and importance and should apply to most OEMs



# Definition of a proxy OEM

As a first step, we define an OEM to serve as proxy in our models for the future of automotive sales and aftersales. We define an OEM by its business segments and classify its size in terms of revenues and profits (contribution margin). The fleet mix and vehicle segment sales are additional classifiers for the size and structure of the OEM.



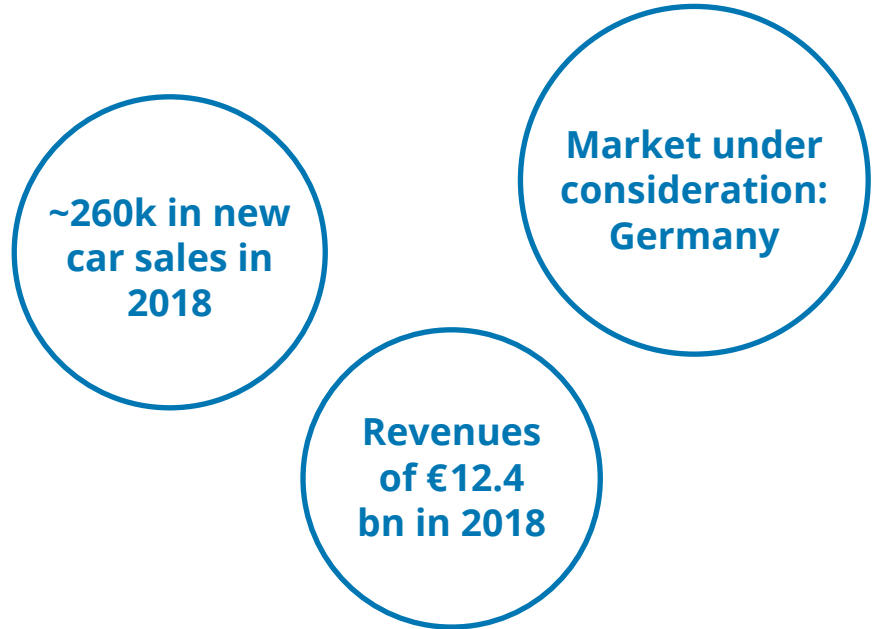


### Characteristics of the proxy OEM

In our analysis, we demonstrate industry development based on a proxy OEM with the following characteristics:

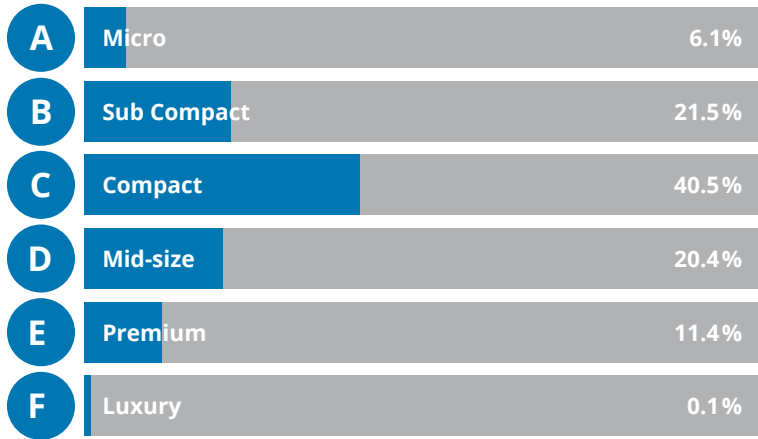
- OEM operates globally, though the market under consideration in our study is Germany
- OEM generates revenues in five different business segments, which will provide a consistent structure throughout the study. All revenue streams are illustrated on the next page in a comprehensive revenue tree, valid from current and future business perspective
- Captive is considered part of the OEM. For a detailed analysis of future development in captives, we recommend reading our Deloitte study "Future of captives – what will be the core businesses for automotive captives in 2030", which was published in 2018
- OEM owns a fleet services entity that provides services to multi-brand vehicles
- OEM is generally perceived by the market as a high-quality and premium manufacturer
- Cars with alternative drivetrains currently account for 2% of total new car sales
- OEM owns part of its retail network

Fig. 3 – Selected OEM characteristics



### Vehicle segments

as share of new vehicle sales in 2018



### Fleet mix as share of new vehicle sales in 2018

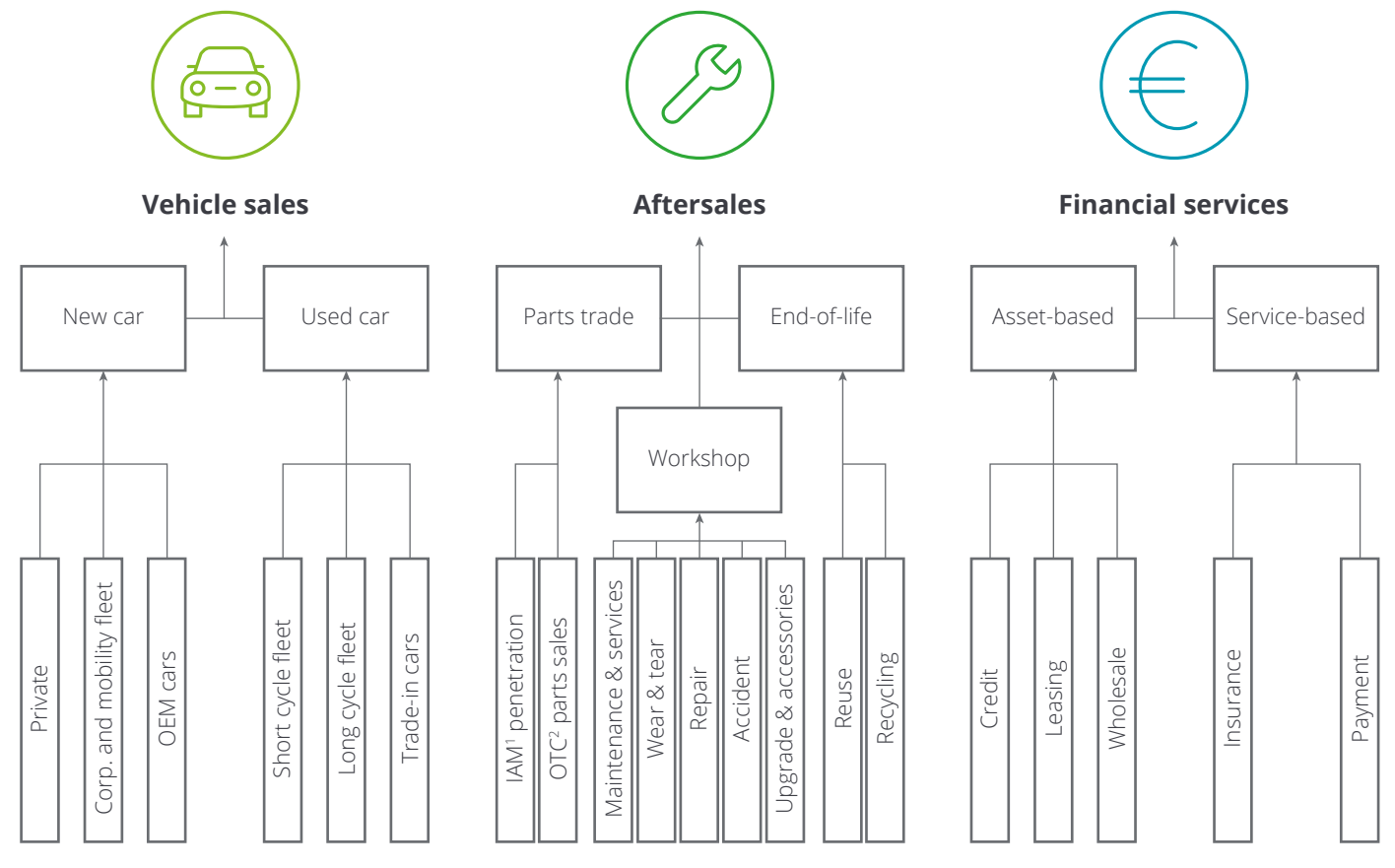


## Revenue tree

OEM generates revenues in five different business segments which serve as a consistent structure throughout the study. All revenue streams should be valid today and in the future for all OEMs and in every market.

**Fig. 4 – Proxy OEM revenue tree**

### Traditional business



□ Revenue (sub-)streams

<sup>1</sup> Independent aftermarket

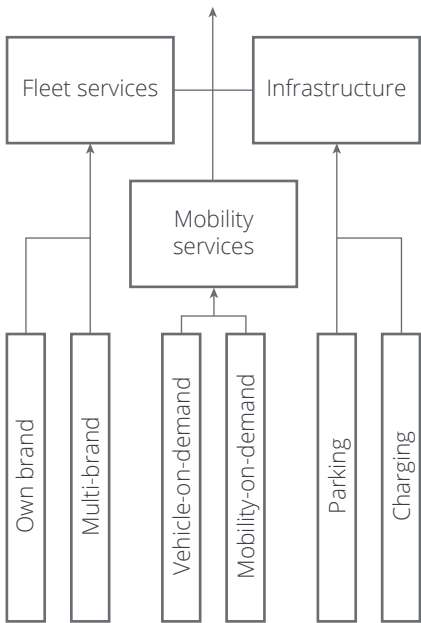
<sup>2</sup> Over-the-counter

<sup>3</sup> Retail sales price

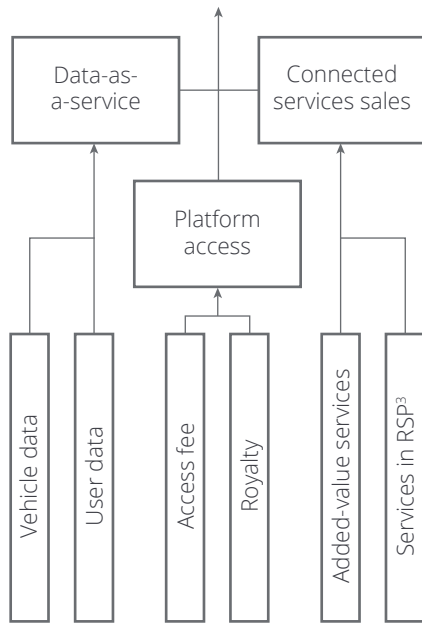
New business →



**Mobility as a Service**

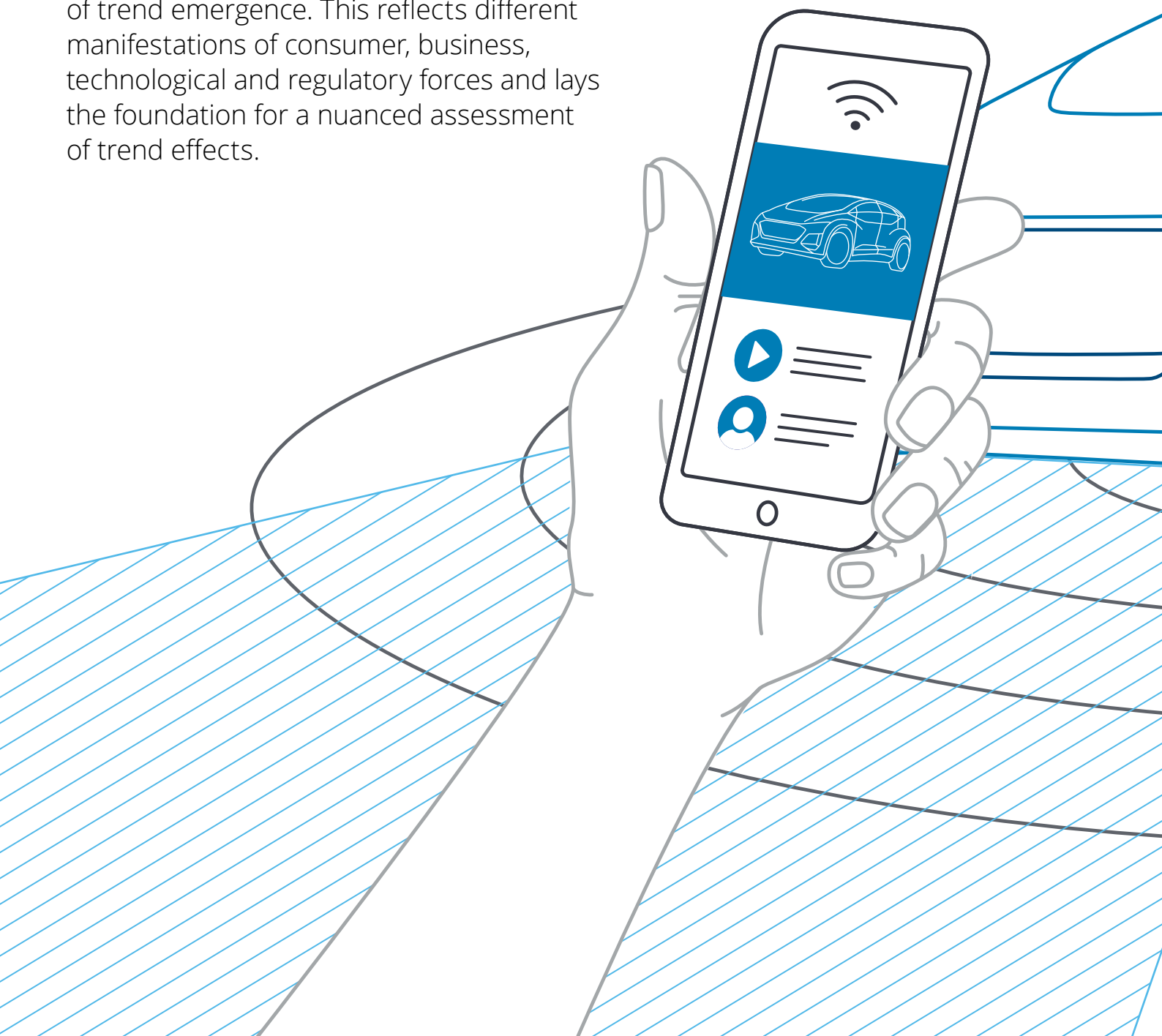


**Car as a Platform**

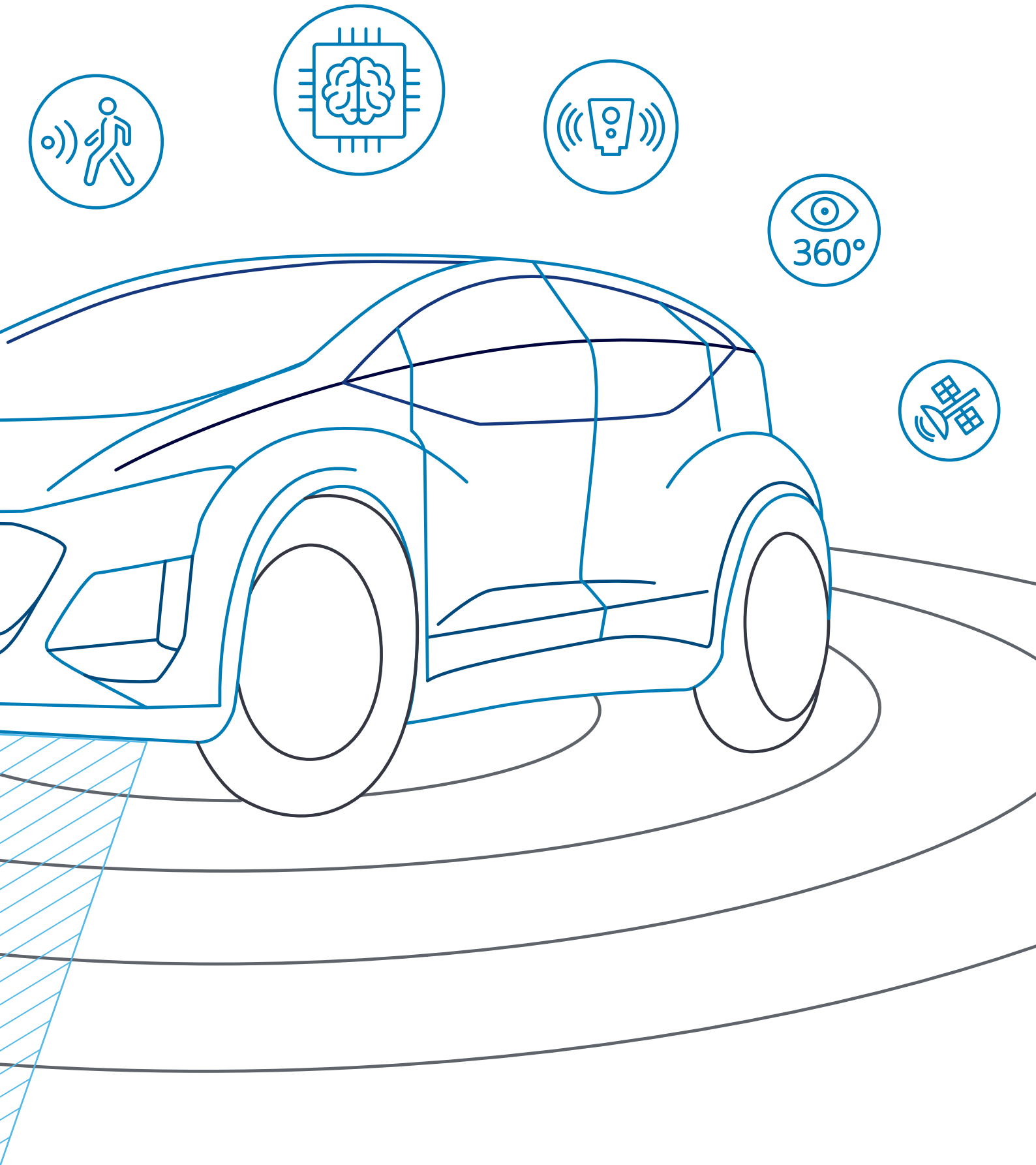


# Trend analysis and forecast of industry drivers

For each automotive industry trend, we forecast a base case and a disruptive case of trend emergence. This reflects different manifestations of consumer, business, technological and regulatory forces and lays the foundation for a nuanced assessment of trend effects.







## Introduction

What the OEM's business model will look like in the future depends on various different influencing factors that are hard to measure and predict.

We screened and analyzed drivers across countries and industries. Factors taken into consideration include regulatory decisions, social changes, technological advancements and the strategic decisions of market players – to name just a few.

Findings were challenged in expert interviews with OEMs, thought leaders and research of sources in the public domain.

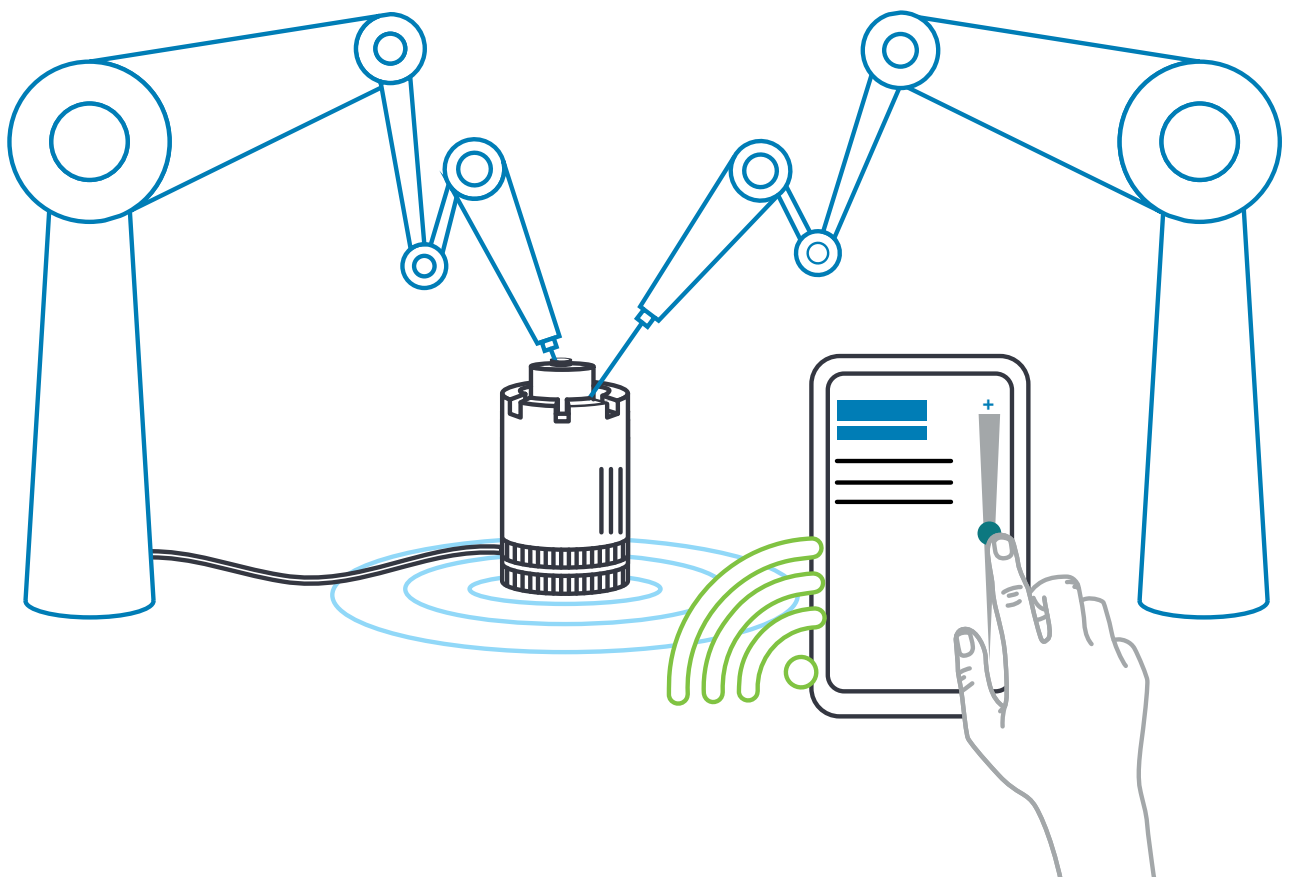
This study zooms in on industry drivers with the highest potential for disruption, ultimately resulting in four main trends that will shape the automotive industry until 2035. Besides those industry trends, we also considered macro-economic developments that affect the automotive industry.

We found that the smallest adjustments relating to selected drivers yield large discrepancies in trend emergence – this applies particularly to regulatory decisions that have the ability to significantly shift trend emergence upwards or downwards.

To prepare for all contingencies, we built different forecasts based on variations in technological, social, political and economic drivers.

We advise readers to prepare for the most disruptive scenario, as past experience shows organizations are more likely to suffer from underestimating than overestimating future trends.

From a technological point of view, we are certain that at least the base case scenario will emerge.



**Automotive industry trends emergence.**

The four main trends shaping the automotive industry until 2035 are connectivity, alternative drivetrains, shared mobility and autonomous driving. Generally speaking, we will refer to those trends as CASA trends throughout this study

**Connectivity**

**By 2035, we assume that all cars will be connected with around one-third operating at full connectivity. Consumers are expected to attach higher value to connected services and shift strongly to online purchasing.**

Connectivity refers to cars as well as consumers that are connected with one another and with their environment. The penetration of car and consumer connectivity depends highly on smart infrastructure development, functioning of back-end infrastructure for data processing and available interface for consumers or third-parties. In Germany, the arrival of 5G connectivity will contribute to the next boom in trend emergence, although we expect discrepancies between urban and rural areas to persist.

In terms of hardware, we see innovative products exiting the research and devel-

opment phase on a large scale. The delay in widespread penetration is mainly due to cost reasons, in terms of both hardware (e.g., light detection and ranging (LiDAR), radar, cameras, systems on a chip (SoCs), sensors) and software (e.g., algorithms for perception & object analysis, HD on-board maps). We assume a ramp-up of production and economies of scale driven by existing demand of connected services use cases, such as predictive maintenance and mobility fleet services.

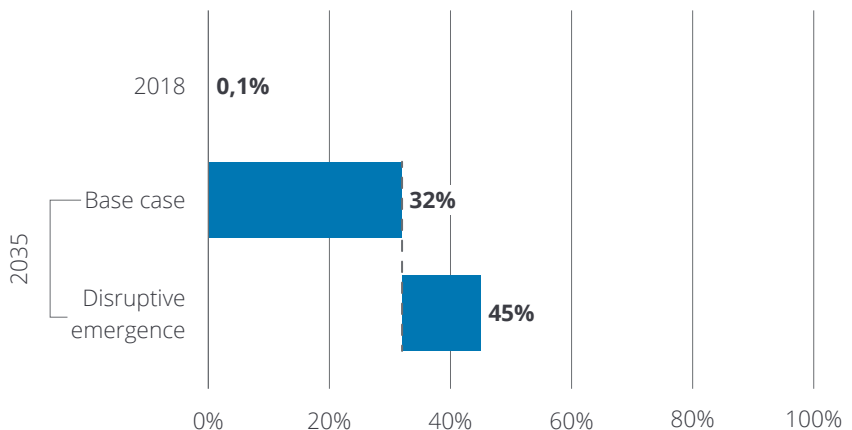
Connectivity among consumers in particular is expected to grow, including their preference for online purchasing. They are accustomed to seamless online purchases of consumer goods and transfer their expectations of service to the automotive industry. In addition, the majority of consumers values – and is willing to pay for – connected technologies in Germany. For

example, 61% of today’s consumers would pay for sensors in the vehicle’s cockpit that detect and act on health and wellness issues. 60% would pay for communication technology to optimize traffic flow.\*

In order to make this trend more tangible, we define connectivity trends based on six levels of vehicle connectivity and functionality, all the way to vehicle-to-everything (V2X) connectivity. V2X includes vehicle-to-infrastructure, vehicle-to-network, vehicle-to-vehicle, vehicle-to-pedestrian, vehicle-to-device and vehicle-to-grid communications.

Even though 100% of vehicles will have basic connectivity by 2035, only 32% are expected to have full connectivity in terms of V2X (base case scenario). This is mainly due to elevated hardware costs that will make V2X a premium option in the passenger car segment.

**Fig. 5 – % share of cars with installed “V2X” functionality of new car sales in Germany**  
**Connectivity**



\*Source: 2019 Deloitte Global Automotive Consumer Study

## Alternative drivetrains

**In the future, we assume that various drivetrains will coexist, with battery electric vehicles leading the way. The emergence of alternative drivetrains is mainly driven by decreasing production costs, local and EU regulation, charging infrastructure and increasing performance.**

Alternative drivetrains are expected to continuously gain share in the overall drivetrain mix. In the alternative drivetrains trend, we consider a variety of drivetrains, since the race for a dominant technology has not yet been won and varies based on geographical markets. In Germany, emerging alternative drivetrains include primarily battery electric vehicles (BEV), some hybrid electric vehicles (Hybrid) and a small fraction of fuel cell vehicles (FCV). We expect this trend to emerge with high certainty and to strongly affect all steps of the current OEM value chain.

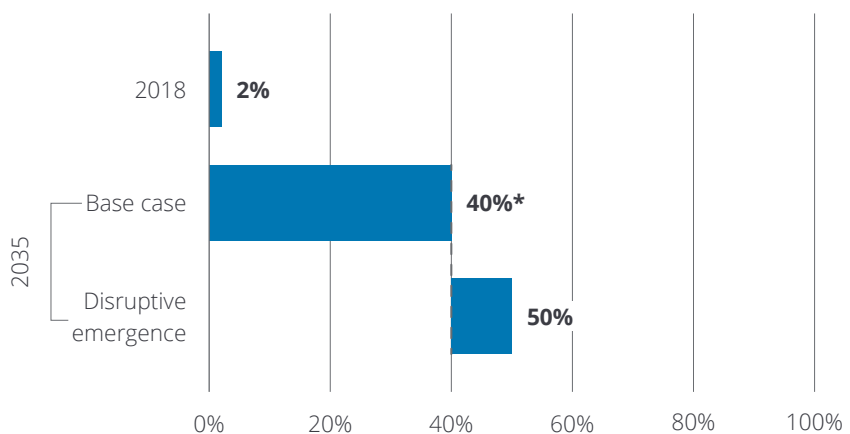
Almost all OEMs and many suppliers are putting immense effort into the research and development of alternative drivetrains. More stringent environmental regulations have impacted the internal combustion engine (ICE) manufacturing industry. There is still room for optimization of gasoline engines with downsizing/upsizing technologies as well as incremental improvements to diesel engine components such as injectors and high-pressure pumps.

There are also ICEs using alternative fuels (ethanol, biodiesel, CNG, LPG). Drivetrains with alternative fuels remain one cluster within ICE and are not further detailed. ICE share growth within overall drivetrain mix is not expected. Local and EU legislation regarding emission levels and announcements from selected countries on planned ICE sales bans add further validation. We also expect investments in charging infrastructure to accelerate the emergence of electric drivetrains.

That said, it is unlikely that we will see a complete end to all ICE sales in Germany. Select providers may even find business potential in a strongly consolidated market. Material costs for alternative drivetrains are relatively high at present, but we expect this to change over time and bolster the emergence of this trend, as demonstrated in the following:

- Electric engines without rare earth elements (e.g. induction engines) can reduce production costs by 20-30% in the near to midterm
- Making engines smaller and lighter can also reduce costs, for example, by using silicon carbide transistors for the engine electronics to reduce capacitor size
- We foresee a strong increase in market volume and in the demand for all electronic-related parts like power electronics, converters/inverters and electric motors

**Fig. 6 – % share of cars with alternative drivetrains of new car sales in Germany**  
Alternative drivetrains



\* 28% BEV; 12% Hybrid; 0.2% FCV

## Shared mobility

**Shared mobility will increase utilization per vehicle and shift ownership from private customers to fleet operators. Growth in mobility services is expected to accelerate with the emergence of autonomous driving.**

Shared mobility is expected to reduce the level of personal vehicle ownership and increase the utilization rate per vehicle, especially in urban areas.

We express shared mobility impact in terms of average vehicle utilization per year measured in kilometers driven per vehicle, as a lower rate of private ownership usually implies more kilometers driven.

This trend has emerged thanks to innovative technology that enables us to better coordinate the flow of information and enable connectivity between cars, consumers and fleet service providers. For instance, as the infrastructure to process financing evolves, we can facilitate enablers like efficient micro-payments. Today, we see this trend accelerating further due to consumer preference for flexibility, increased service availability and a higher economic benefit overall from asset sharing. Urbanization in particular has also brought more economic benefit to consumers, while the new tech-savvy generation continues to lead the way towards pay-per-use mobility. Of course, the quality of service has improved as well, in part due to the transparent and continuous feedback in this usage-based business model, which enhances the overall user experience.

The shared mobility trend will shift the business to more usage-based mobility services. Today, the market is still highly fragmented and hyperlocal with a variety

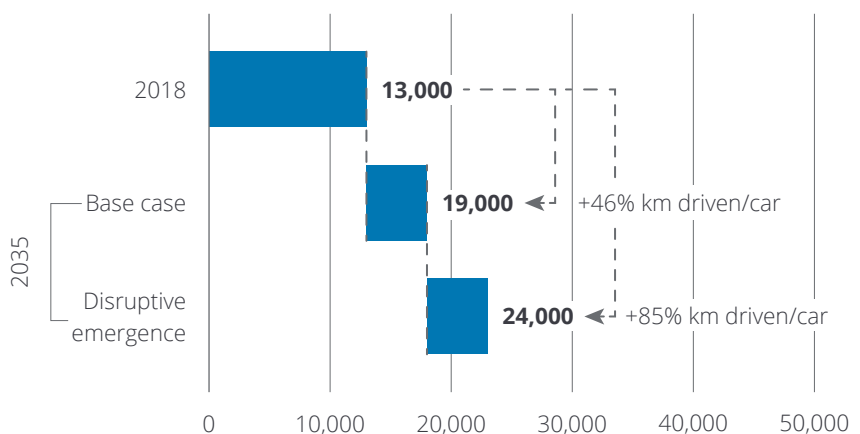
of mobility service concepts and service providers. In order to structure the current shared mobility services landscape, we differentiate between vehicle-on-demand ("passenger drives") and mobility-on-demand ("passenger is driven") services. Vehicle-on-demand would include services such as free-floating car sharing, peer-to-peer sharing or rental cars. Mobility-on-demand includes services such as ride hailing or ride pooling services, among others.

The shared mobility trend will shift ownership away from private customers to fleet operators which will represent the largest customer share for most OEMs in the future.

The emergence of ADAS ("Advanced Driver Assistance Systems") level 4 or 5 will lead to a strong shift towards the use of mobility services, as driver costs constitute a large portion of current passenger costs.

The pronounced urban and rural divide looks set to persist in the future. Rural areas suffer from lower population density, which leads to vehicle utilization levels that are too low to make the underlying business model viable. Regulatory acceptance of mobility service providers slows down the shared mobility trend and was included in our study as a hindering factor for shared mobility.

**Fig. 7 – Utilization per vehicle measured in average kilometers driven per year in Germany**  
**Shared mobility**



## Autonomous driving

**The largest technological hurdle lies between level 3 and level 4 autonomous driving. We expect at least level 4 to be applied initially in specific use cases only.**

Autonomous driving refers to the trend towards cars driving at a full automation level without human intervention. In terms of enabling technologies, automated driving has evolved from advanced driver assistance systems (ADAS) for active safety, which have been developed over recent decades and are still undergoing continuous improvement. A classification system based on six different levels, ranging from fully manual to fully automated systems, was published in 2014 by SAE International, an automotive standardization body (see diagram below). Level 0 to level 2 requires a human driver to monitor the driving environment at all times. Level 0 means no driver assistance at all, while level one provides simple support such as speed control. Level 2 combines lateral and longitudinal control by the vehicle in specific situations. However, the driver needs to monitor the car and traffic at all times and to be ready to take over vehicle control immediately.

The focus of current developments among car manufacturers is in the range from level 2 to level 4. The most important transition is between partial automation (level 2) and conditional automation (level 3), as in the latter case the driver is allowed to be out of the loop completely. The main difference between level 4 (high automation) and level 5 (full automation) is the system's ability to handle specific restricted driving modes vs. all driving modes (eventually, these types of vehicles will not have a steering wheel at all).

Automotive manufacturers are forging the path to high and full automation based on previous experience with driver assistance systems, particularly the proven success of level 2 automation. However, the quantum leap in system reliability is between level 3 and level 4. At both levels, the system is already responsible for monitoring the driving environment, but at level 3 (conditional

automation), a human driver must still be prepared to take control of the vehicle within seconds. At level 4, the system must be able to manage specified traffic conditions without any driver intervention and revert to a safe state when unforeseen events occur. Level 3 and level 4 technologies are already being launched on the market, with level 3 primarily focused on an automated highway pilot and level 4 on specified applications such as automated valet parking or the first robo-taxi fleets in selected cities.

In a base case, we believe that 5% of new vehicle sales will offer level 4 or level 5 automation. However, in a disruptive scenario with favorable regulatory decisions, widespread social acceptance and technological innovation, this could go as high as 49%. The high discrepancy is mainly due to the fact that large-scale adoption beyond selected use cases is especially dependent on regulatory push.

**Fig. 8 – % share of autonomous vehicles (level 4/5) of new vehicle sales in Germany**  
**Autonomous driving**

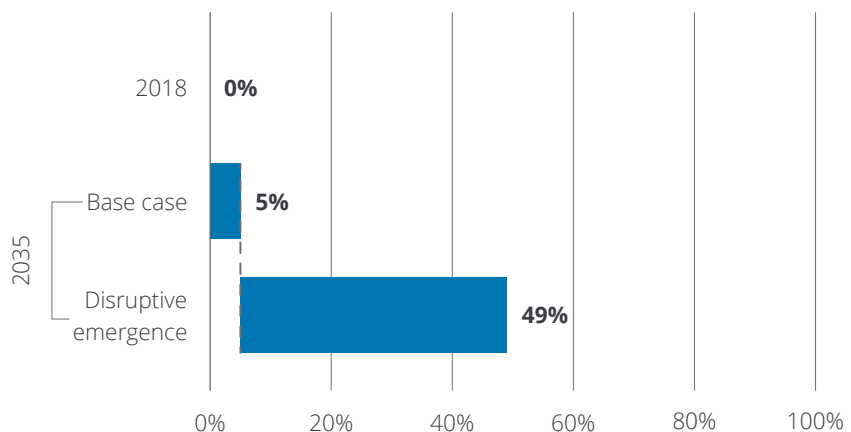
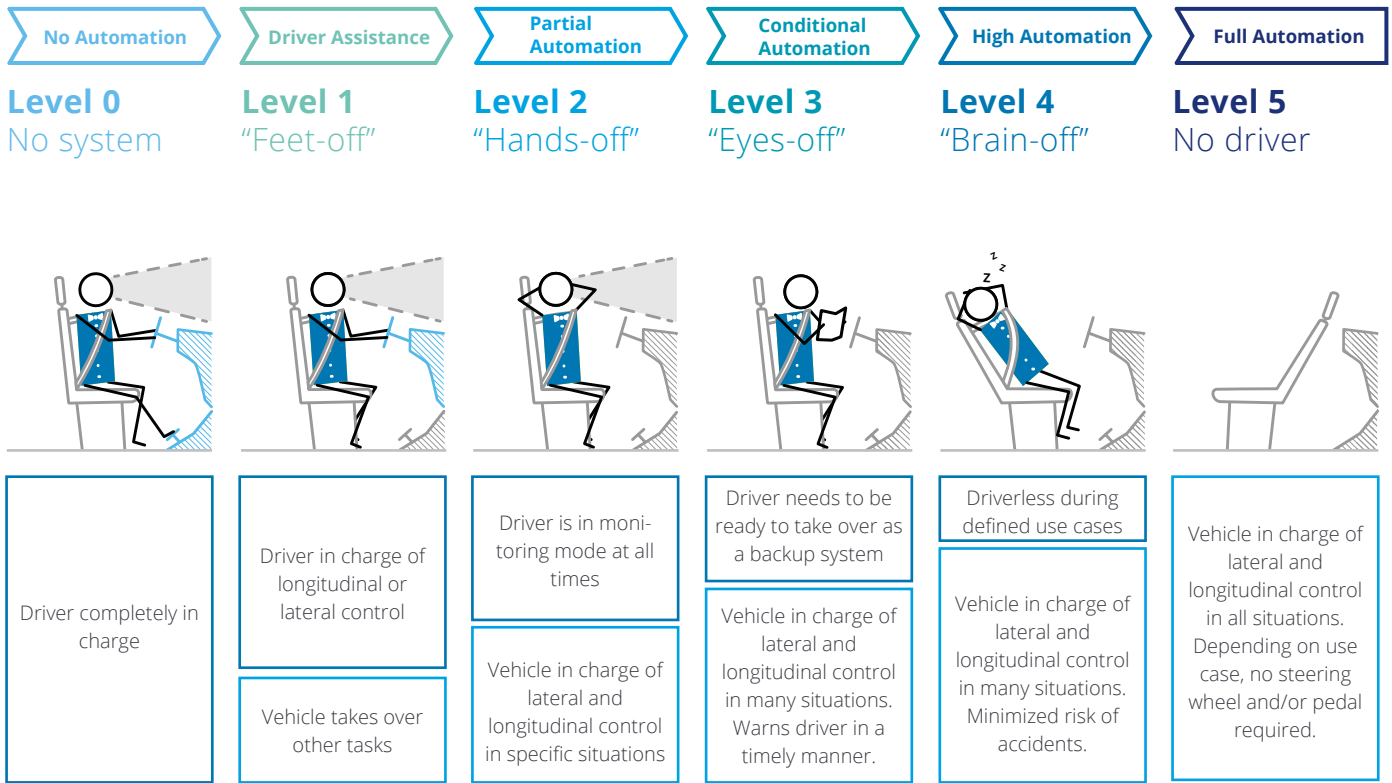
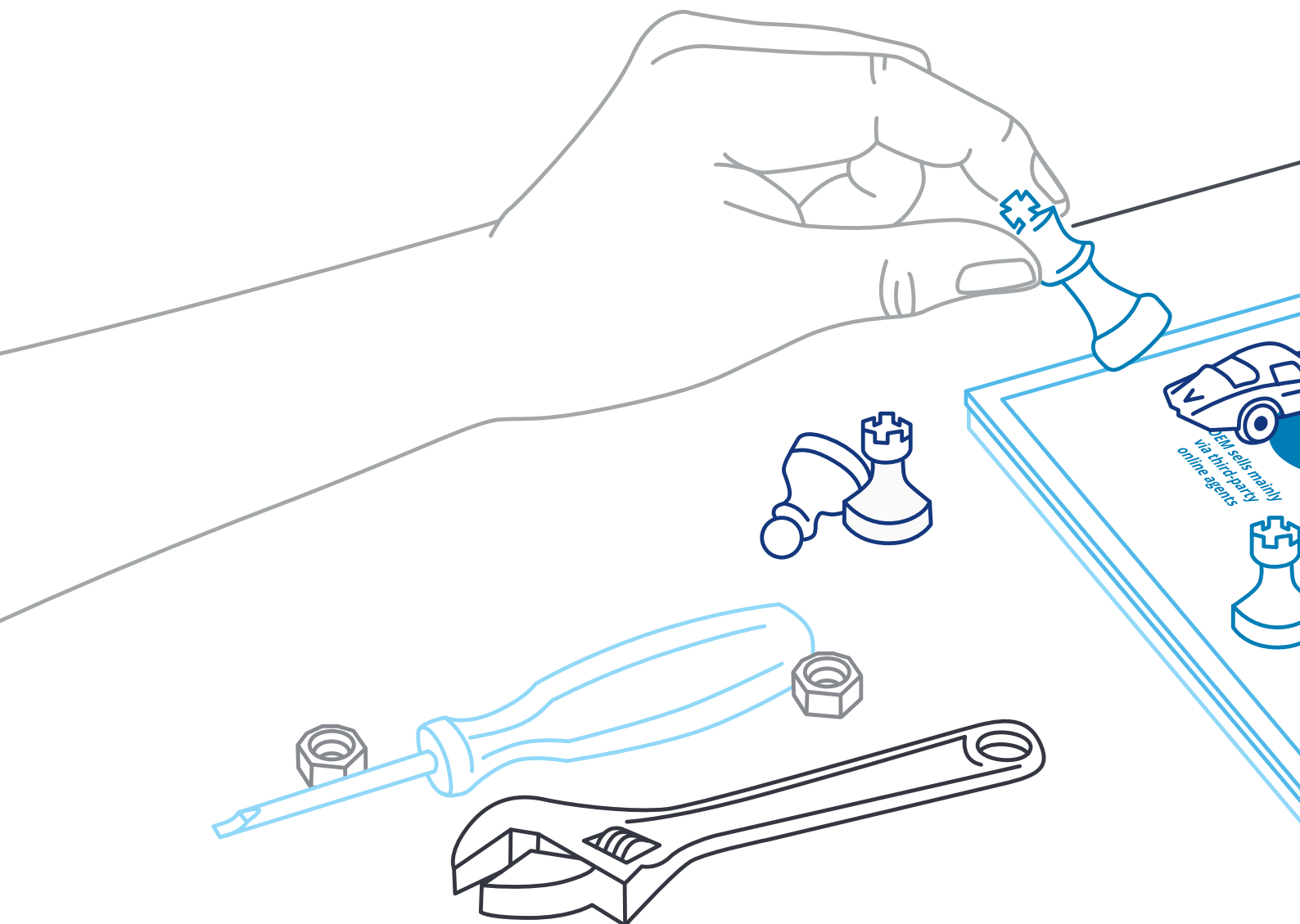


Fig. 9 – ADAS levels overview

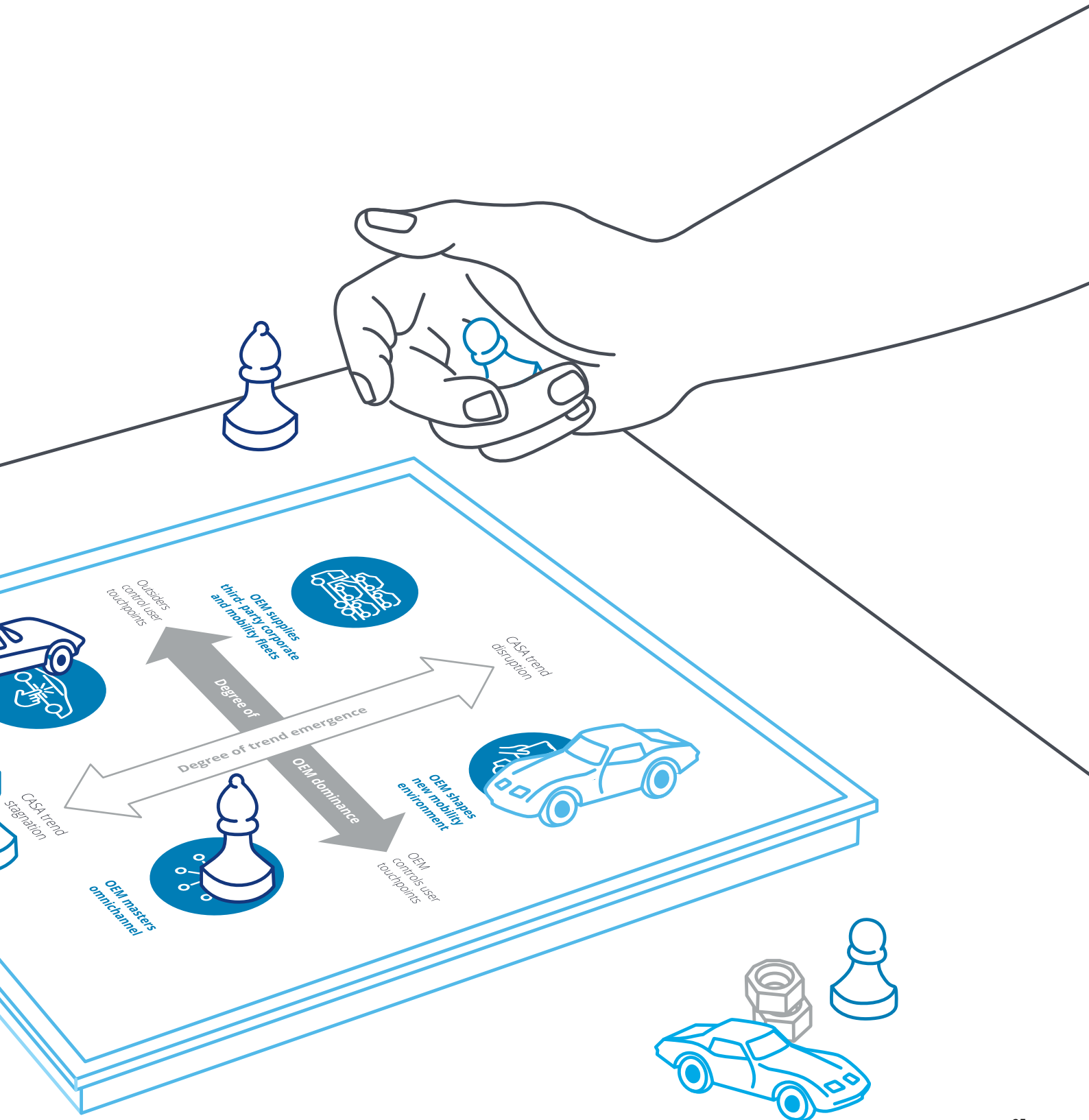


# Identification of “future states” as strategic option spaces

We present a differentiated perspective of future industry effects based on two scenarios of trend emergence. Beyond that, we distinguish between two degrees of future OEM dominance over its competitive environment, resulting in four possible future states in 2035.







## Introduction

In order to show how industry trends will affect OEM business in a comprehensive and nuanced way, we have built a framework that considers different scenarios of industry trend emergence for OEMs with different strength and capabilities.

The maturity of the emerging trends will shape the environment facing OEMs in Germany in 2035. Trend emergence depends on political, business, social and technological criteria that will have a significant effect on OEM business.

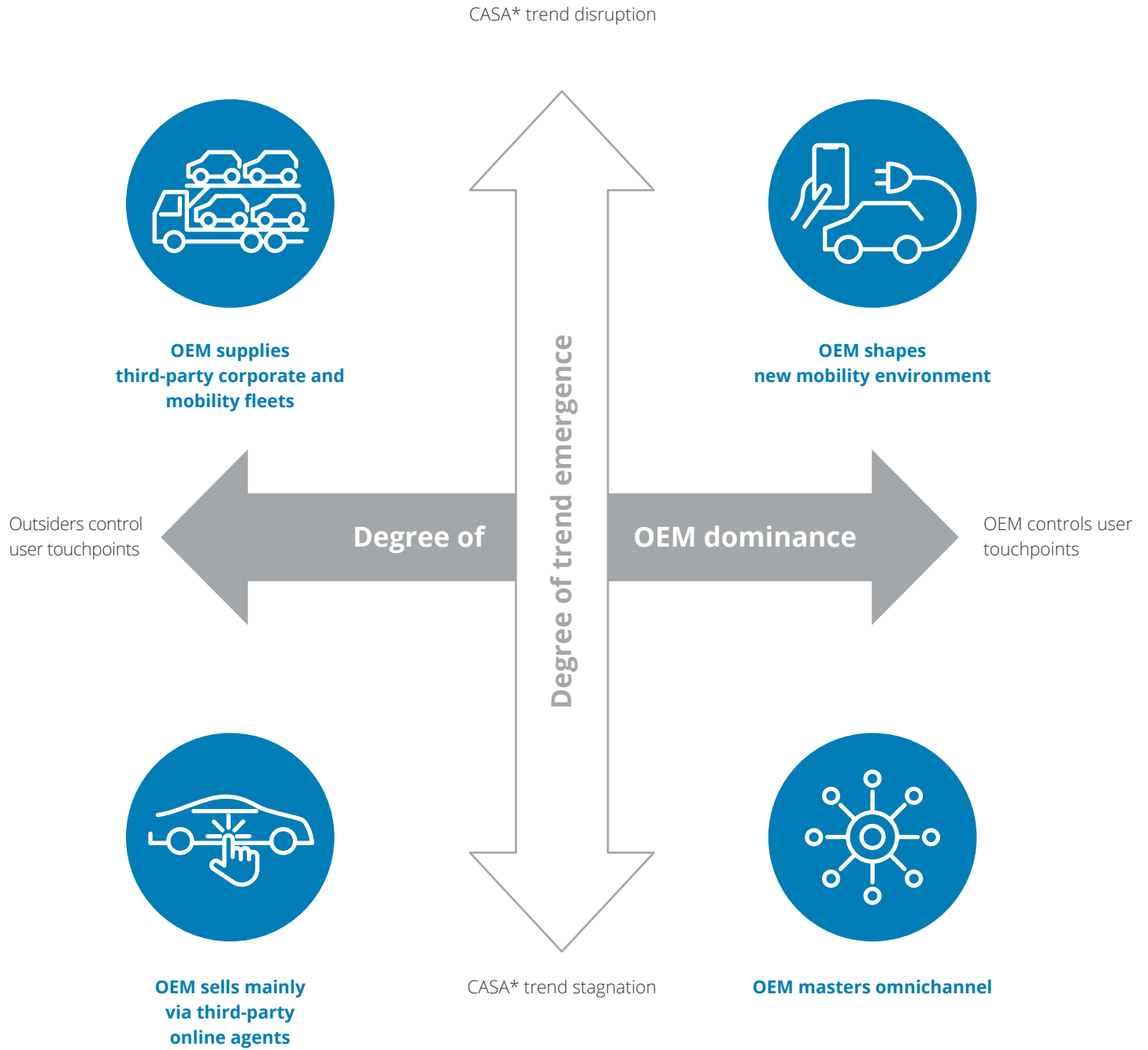
That said, the future of any OEM is also the result of its own strategic decisions, and different OEMs will face different future states as a result. The proxy OEM for our purposes is the dominant player in the industry, which for decades successfully sold vehicles, provided profitable aftersales products and services and built a financial services infrastructure. Beyond that, the OEM has met its customers' needs through indirect stationary retail, while its portfolio of workshops and dealerships has been effective in capturing revenues and profit pools across all business segments.

In light of current competitive dynamics, however, we must acknowledge that this assumption may not hold true in the future. Recent signposts indicate a change in the competitive dynamics, with new market entrants already claiming their share of the OEM-dominated automotive industry. Technological disruption and evolving mobility user behavior in particular have opened up the opportunity for a new kind of competition. Market entrants from unrelated and adjacent industries have started launching offerings that bypass the OEM sales channels and sell directly through digital user touchpoints that are becoming increasingly relevant.

We also need to take into consideration that not all OEMs will still exist in their current form in 2035. Future states are a result of consolidation trends and reflect a proxy OEM that prevails.

What is more, strategic decisions do not necessarily apply to an entire OEM, but may instead vary depending on the brand and organizational entity.

Fig. 10 – Future states in 2035



\*CASA = Trends of connectivity, alternative drivetrains, shared mobility and autonomous driving

## Future states

At the intersection of CASA trend emergence and OEM dominance over its new competitive environment, we identify four future states.

### Future with trend stagnation

Where trend emergence is weak in CASA, new business segments such as Mobility as a Service and Car as a Platform will have less relevance and market potential. That said, we will still see vehicle sales shift further to fleet customers and private customers move increasingly to online car purchases. OEMs will need to establish a direct sales network and implement an omnichannel strategy. Securing aftersales revenue is another key goal. Workshops will become increasingly dependent on external online agents and OEMs will have to do more to retain customers in the proprietary aftersales ecosystems – it will no longer suffice to have a vehicle-centered aftersales business model. Failing that, OEMs will face margin pressure. Large digital players will increase their negotiating power and the OEM will find itself relegated back in the value chain. Omnichannel transformation will therefore be a decisive factor for OEMs looking to coexist successfully with digital challengers.

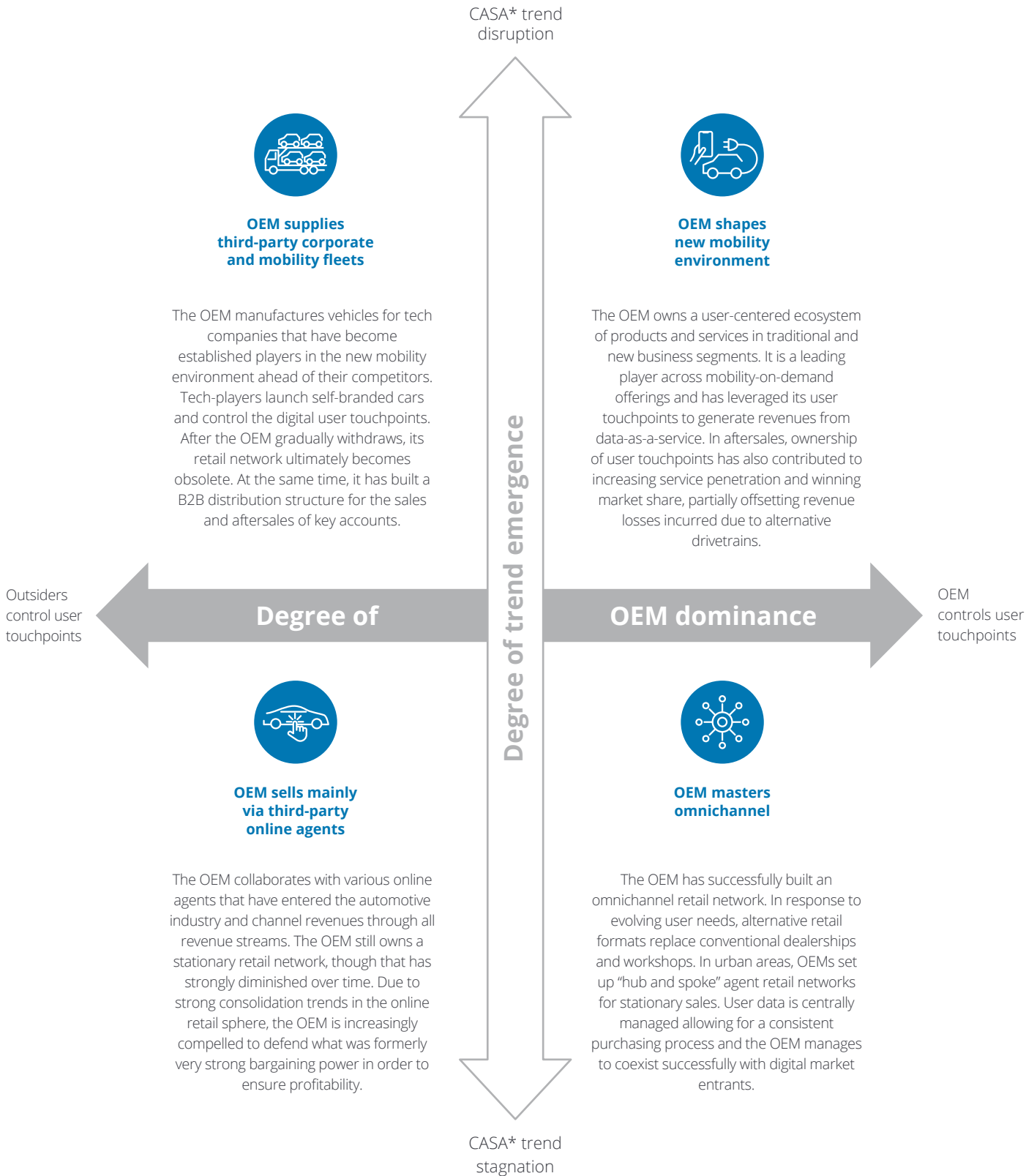
### Future with trend disruption

Where trend emergence is strong in CASA, OEMs are under even more pressure to transform if they want to prevail in a new mobility environment. There will be a strong consolidation and a “winner-take-all” market dynamic in new business segments at the user interface, along with strong challengers among the new “digital native” competitors. The OEM will need to invest heavily in distant capabilities and persevere if they want to reach future mobility users through digital touchpoints. The OEM might also decide to avoid making significant changes to the business model and maintain a vehicle-centered ecosystem, establishing partnerships with mobility service providers and online retailers to respond to the new business segments.

If this is the case, the OEM will have to sacrifice its ties to end users of mobility services and work instead to build a direct key account sales structure. This transformation will not be easy due to cost-driven competition and further consolidation. The OEM must exploit economies of scale by scaling-up volume through acquisitions and partnerships or by building production facilities. It will also have to invest heavily in new vehicle technology (connectivity, autonomous driving technology, alternative drivetrains) to avoid being displaced by current suppliers.

In any future state, the OEM has to transform significantly to gain market share and defend against competition.

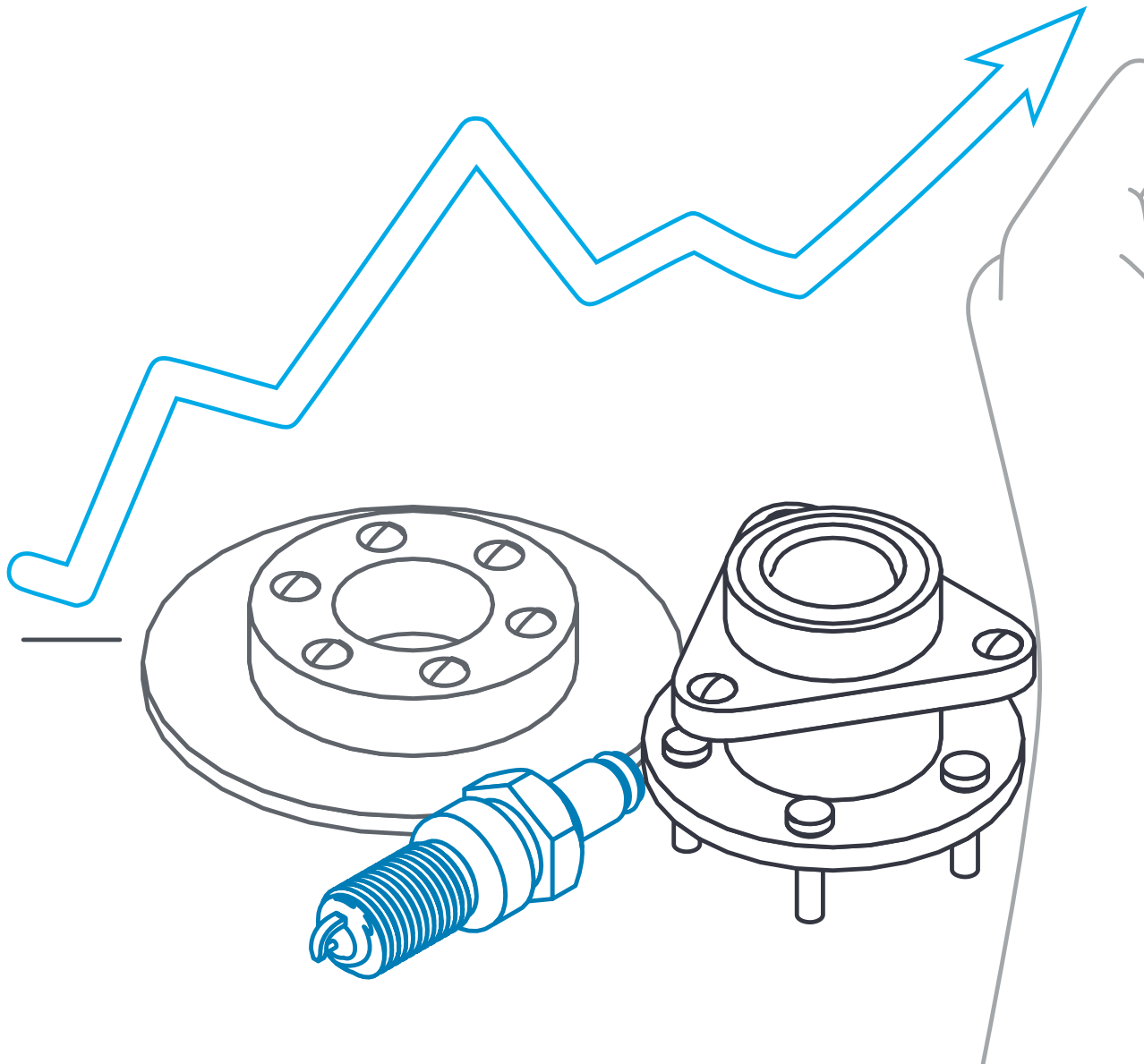
Fig. 11 – Future states in 2035 – description



\*CASA = Trends of connectivity, alternative drivetrains, shared mobility and autonomous driving

# Qualitative and quantitative evaluation across business segments

In this chapter, we go through each business segment to show how trends affect these businesses qualitatively and quantitatively on a granular revenue stream level within future states. The results shown are the output of a flexible tool to forecast revenue and profit pool developments.





**Evaluation approach**

As the goal of this study is to facilitate decision-making in the face of uncertainty, it is essential that we quantify projected shifts and their implications for the automotive industry. Therefore, as an integral part of this study, we designed a model to assess the quantitative implications of all four future states on OEM revenues and profit pools.

**1. Definition of a proxy OEM**

To lay the foundation for our quantitative model, we defined a proxy OEM. This OEM represents an industry average and allows us to illustrate the implications of future industry trends. Sources include public data as well as Deloitte industry data.

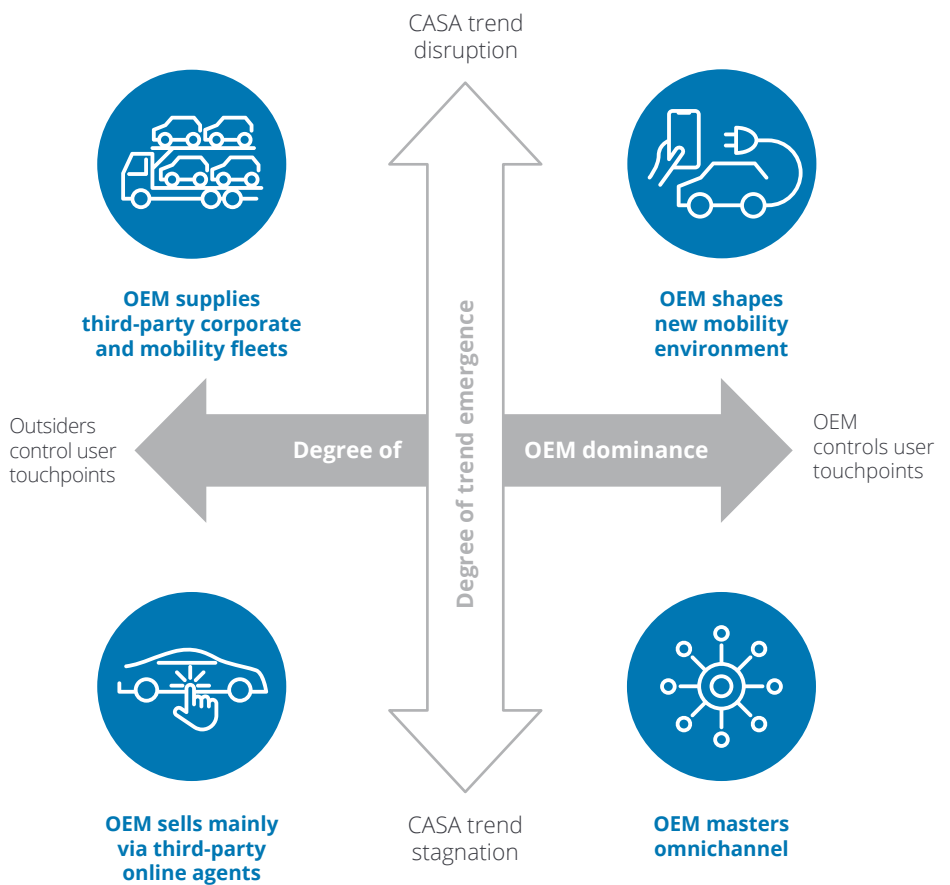
**2. Calculation of baseline 2018 revenues and profits**

2018 baseline revenues and profits reflect industry averages. We consider profits in terms of contribution margin, i.e., selling price per unit minus the variable cost per unit. To research 2018 financials, we looked at price and quantity levers within revenue sub-streams and allocated values based on data in the public domain and our internal knowledge database.

**3. Forecast of base case 2035**

To forecast the 2035 base case revenues and profits, we created a base case scenario of trend emergence and applied it to all price and quantity levers. Beyond that, we factored macro-economic and demographic changes into our base case forecasts. The base case reflects the expected case of our model using the assumptions deemed most likely to occur. Furthermore, the proxy OEM does not engage in radical corporate transformation activities and continues operations as in the past. Forecasts do not account for inflation. Sources comprise existing Deloitte studies and tools, information in the public domain, investor reports as well as expert interviews with clients and thought leaders.

**Fig. 12 – Future states in 2035**





**4. Forecast of future state variations 2035**

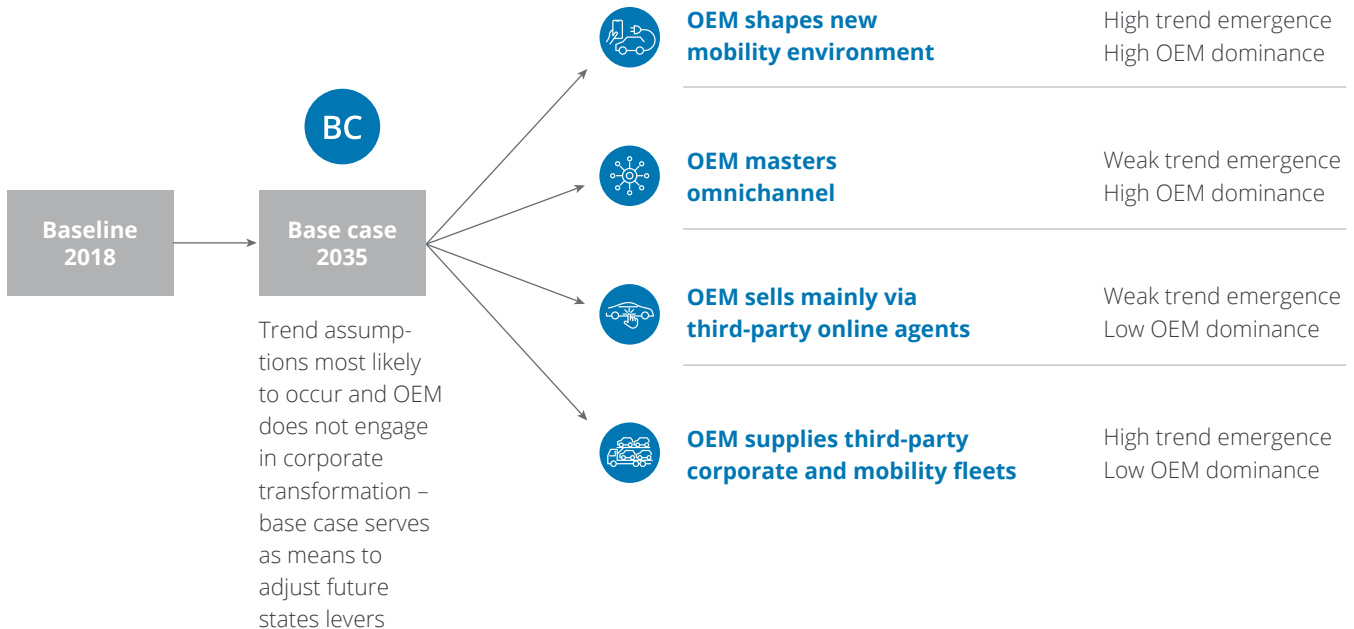
As a next step, we developed a stagnant and a disruptive scenario of industry trend emergence and adjusted our base case in both directions. The resulting addressable markets were given an OEM share depending on the OEM's ability to channel revenues via its own sales network. Both our assumptions on the maturity of industry trends and the ability of an OEM to capture traditional and future revenues were used to determine the four future states.

We determined trend effects by deriving and quantifying the causal effect of trend drivers on all revenue stream levers using research methods, such as regression analysis and expert insights. We looked at each price and quantity lever within sub-revenue streams and analyzed how each trend would affect them.

**5. Consolidation in simulation tool**

To reflect strategic choices and different perspectives, we developed a simulation tool that uses concrete OEM figures to calculate the implications of various strategic decisions. The tool, which was developed by Deloitte Analytics institute, can be adapted to defined vehicle segments, geographic markets of interest, desired time horizons and the degree to which users believe particular industry trends are likely to emerge.

**Fig. 13 – Illustrative approach**



### Quantitative evaluation

There is only one future state in which the OEM can expect significant revenue growth by 2035 – when the OEM actively shapes the new mobility environment. In our base case, the OEM faces a slight decrease in revenue and profit. In future states where the OEM relinquishes some of its market dominance, profits decrease significantly.



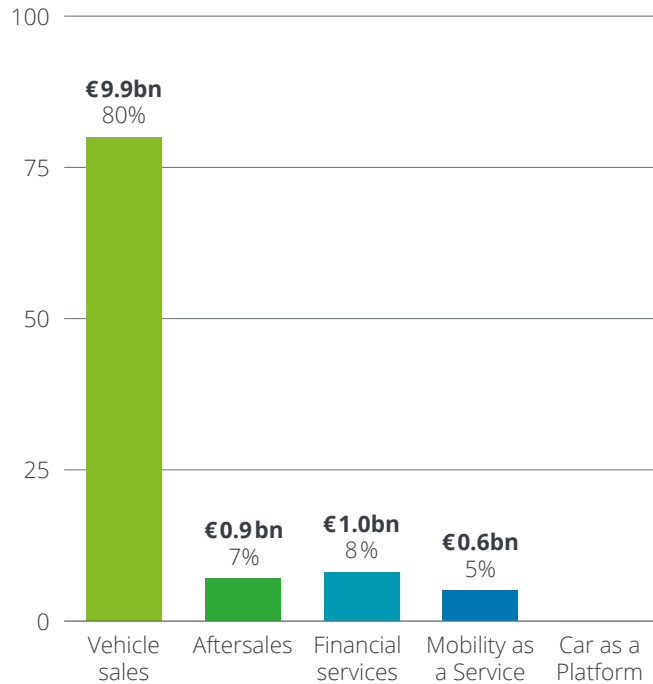
#### Base case

In the base case, the OEM suffers from revenue decline in traditional business segments, such as vehicle sales and aftersales. We only see growth in financial services, where revenues increase overall by 31% despite the drop in vehicle sales. There is significant growth in the new business segments Mobility as a Service (164%) and Car as a Platform (987%). In total, however, the proxy OEM loses 6% of its total current business by 2035, as new business segments are not able to compensate for the loss of traditional ones.

**Fig. 14 – Revenues of proxy OEM in 2018 and base case 2035**

#### 2018 revenues

Total: €12.4bn



#### 2035 base case revenues

Total: €11.7bn

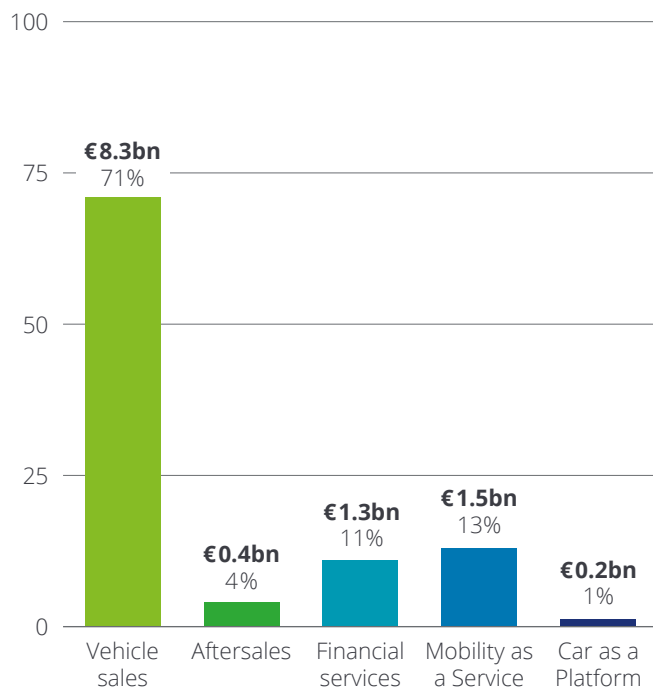
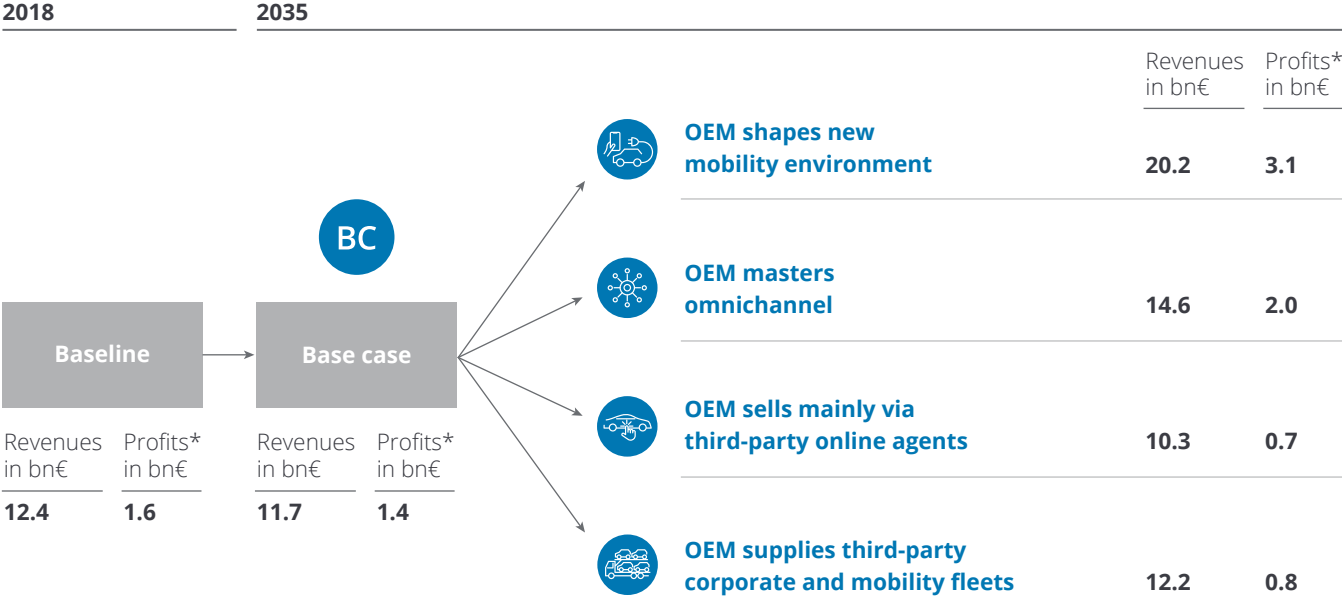


Fig. 15 – Summary of total revenues and profits of proxy OEM in 2018 and in 2035



\* Contribution margin: Selling price per unit minus the variable cost per unit



### 1. OEM shapes new mobility environment

Where the trend emergence is strong, the OEM experiences a revenue increase of 63%, provided the OEM is able to actively shape the new mobility environment. So, even though overall market vehicle sales are declining, the OEM manages to add to its market share and generate a 28% increase in vehicle sales revenues by 2035. A drop in aftersales revenues and profits is, however, unavoidable. We see strong growth in Mobility as a Service and Car as a Platform. Overall company profits increase by 94%.



### 3. OEM sells mainly via third-party online agents

This future state has a negative impact on topline revenues across traditional business segments. Vehicle sales decline by 18% and aftersales by 58%. New business segments still make up around 11% of total revenues. Total profits across all business segments decline by 58% in this future state.



### 2. OEM masters omnichannel

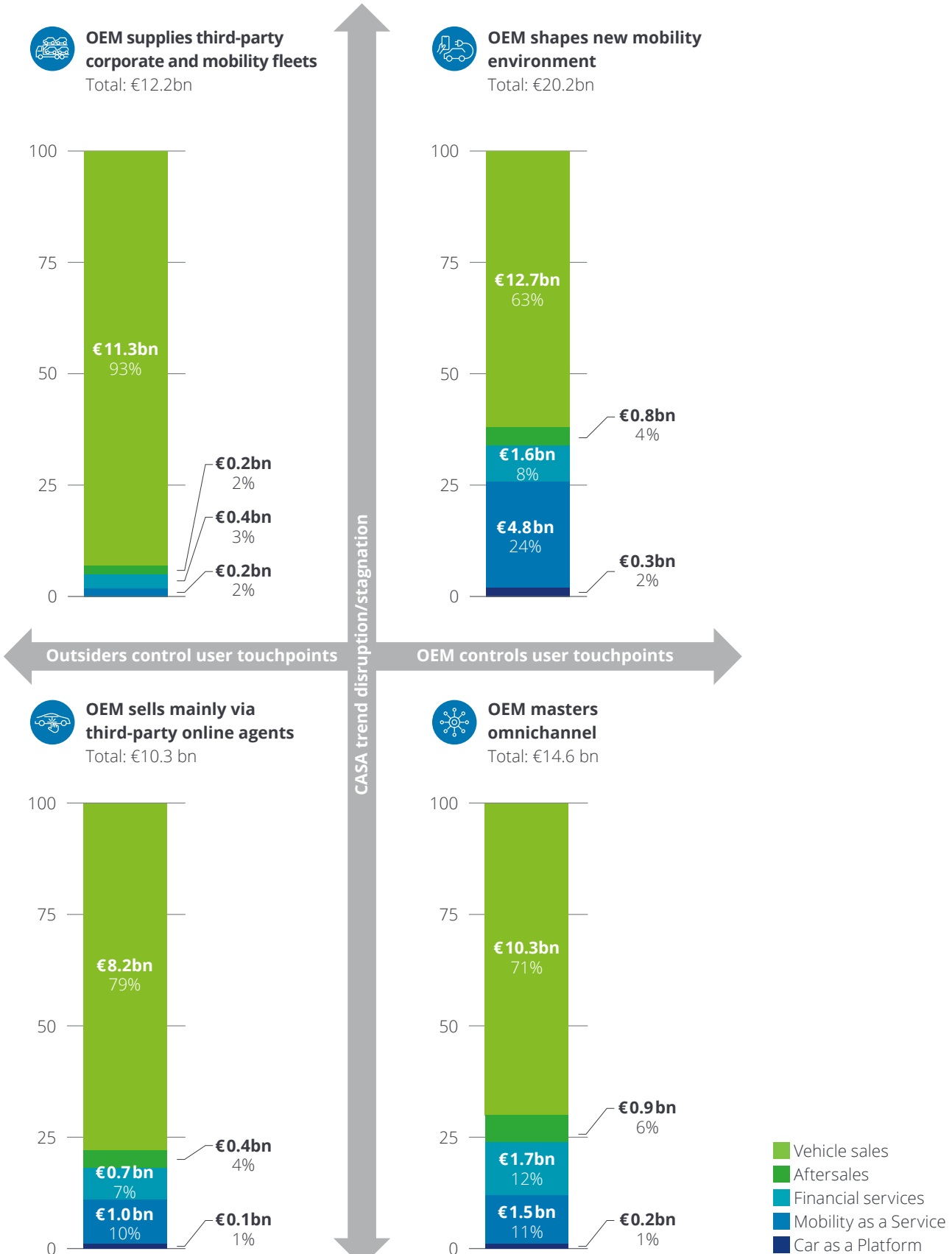
In the future state where the OEM masters omnichannel, revenues increase by 18%. Aftersales revenues, however, decline by 7%. We see financial services revenues grow by 70% and Mobility as a Service revenues grow by 179% over time, bringing the overall increase in OEM profits to 22%.



### 4. OEM supplies third-party corporate and mobility fleets

In this future state, profits decline strongly by 53% in comparison to 2018. In traditional business segments, only vehicle sales revenues grow by 14%. New business segments remain mainly untapped and Car as a Platform revenues grow by 138% but stay at a very low level in absolute terms.

Fig. 16 – Revenues of proxy OEM across future states in 2035



Numbers may not add up due to rounding

### Overview of business segments

The following section offers an in-depth analysis of future developments along all five OEM business segments.

Although we conducted a financial simulation for all future states, our main focus is on the base case figures, with examples of different manifestations across other future states in select cases. We will show how industry trends impact OEM business segments on a granular revenue stream level in each business segment. At the end of each business segment section, we draw conclusions to support today's decision-makers and identify the priority actions outlined in the next chapter.

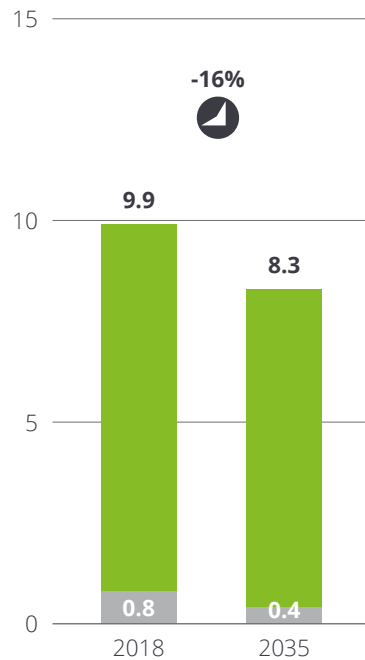
**Fig. 17 – Base case figures**

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#### Vehicle sales

Revenues and contribution margin in bn € in 2018 & 2035

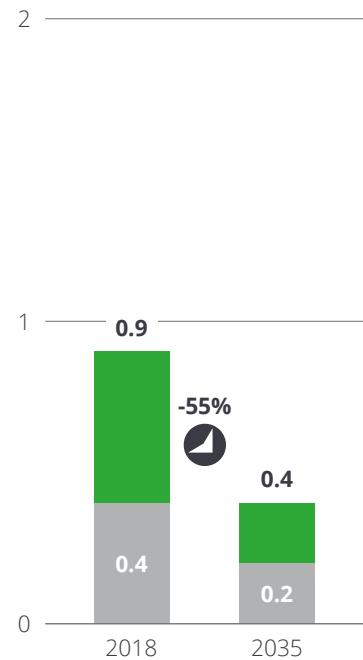


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#### Aftersales

Revenues and contribution margin in bn € in 2018 & 2035



### Revenue streams



#### New car

Revenue growth 2018–2035

-7%



#### Used car

Revenue growth 2018–2035

-35%



#### Parts trade

Revenue growth 2018–2035

-24%



#### Workshop

Revenue growth 2018–2035

-60%



#### End-of-life

Revenue growth 2018–2035

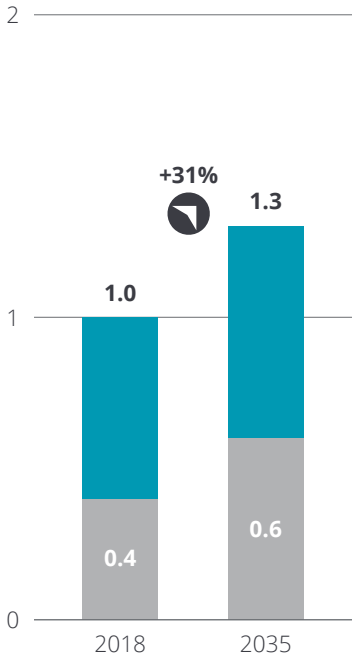
+20%  
CAGR\*

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**Financial services**

Revenues and contribution margin in bn € in 2018 & 2035

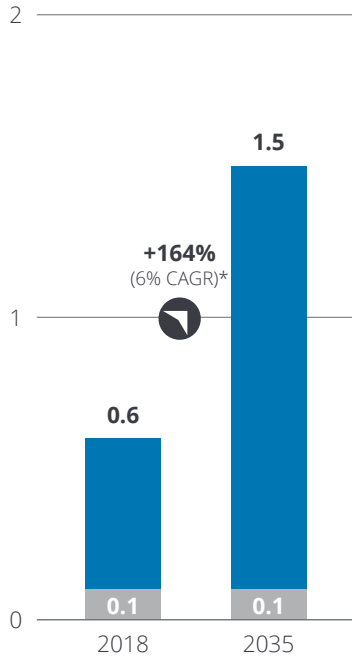


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**Mobility as a Service**

Revenues and contribution margin in bn € in 2018 & 2035

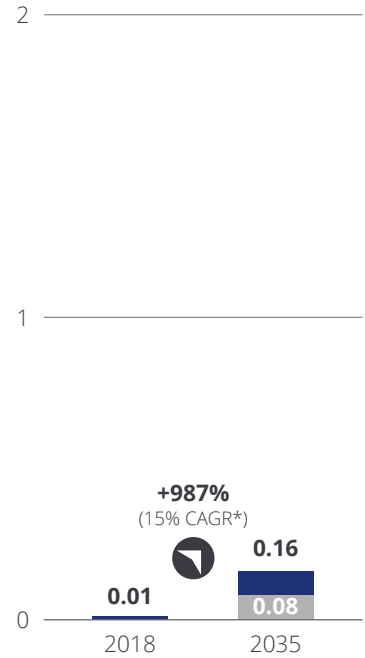


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**Car as a Platform**

Revenues and contribution margin in bn € in 2018 & 2035



**Asset-based**

Revenue growth 2018-2035

**+28%**



**Service-based**

Revenue growth 2018-2035

**+45%**



**Fleet services**

Revenue growth 2018-2035

**+16%**



**Mobility services**

Revenue growth 2018-2035

**+14% CAGR\***



**Infrastructure**

Revenue growth 2018-2035

**+20% CAGR\***



**Data-as-a-service**

Revenue growth 2018-2035

**+41% CAGR\***



**Platform access**

Revenue growth 2018-2035

**+22% CAGR\***



**Connected services sales**

Revenue growth 2018-2035

**+9% CAGR\***



# Vehicle sales

## Summary

- The OEM's vehicle sales revenues will decrease by 16% in the base case
- In particular macro-economic factors such as the aging population, but also the shared mobility trend (including emergence of autonomous mobility services) and the declining used car business will reduce vehicle sales until 2035
- Premium car sales rise as the average household income increases
- The shift from private to corporate fleets, which is already ongoing, will continue strongly in the coming years and accelerate the need for retail transformation
- Online purchases are becoming more important, with the used car business already leading the way
- Direct sales reduce the cost of retail significantly and help avoid intra-brand competition. That said, transaction prices are expected to fall at the same time, because online sales favor price transparency

**Fig. 18 – Revenue growth in % from 2018 to 2035 of proxy OEM by revenue streams**

		2018 – revenue bn €	Base case	OEM shapes new mobility environment	OEM masters omnichannel	OEM sells mainly via third-party online agents	OEM supplies third-party corporate and mobility fleets
New car	Private	2.2	-18%	-1%	-6%	-22%	-100%
	Corporate & mobility fleets	2.5	7%	107%	22%	1%	209%
	OEM cars <sup>4</sup>	2.0	-13%	4%	-1%	-17%	-100%
Used car <sup>5</sup>	Short cycle fleet	1.5	-21%	33%	26%	-15%	44%
	Long cycle fleet	1.6	-47%	-29%	-24%	-43%	-19%
<b>Total</b>		9.9	-16%	28%	4%	-18%	14%

Numbers may not add up due to rounding

<sup>4</sup> OEM self registrations (to employees) plus demo-cars

<sup>5</sup> Trade-in used car revenues not considered as proxy OEM does not yield revenues in that segment



**The OEM's vehicle sales revenues will decrease by 16% in a base case due to various influencing factors.**

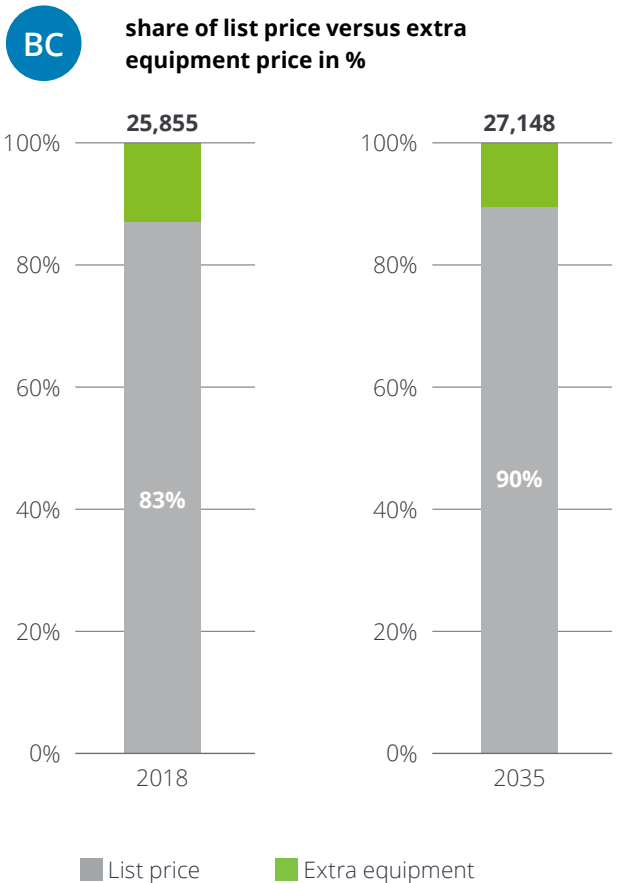
Following influencing factors will positively affect OEM vehicle sales revenues.

Increased household income favor premium car sales and cause car prices to rise. The share of households with annual incomes above €65,000 is expected to increase from 13% in 2019 to 33% in 2040.

Increased level of vehicle utilization with shared mobility is expected to lead to an increase in the share of newer vehicles in circulation as average vehicle lifetime is expected to decrease.

Beyond that, increasing the amount of standard technology built into new cars also has a positive effect on prices – list prices would rise due to higher standards regarding integration of autonomous and connected hardware components, such as LiDAR (light detection and ranging), sensors, radar and cameras.

**Fig. 19 – Average new car sales price in €**



**Vehicle sales decline due to general socioeconomic factors, a drop in used car business and reduced vehicle ownership per person.**

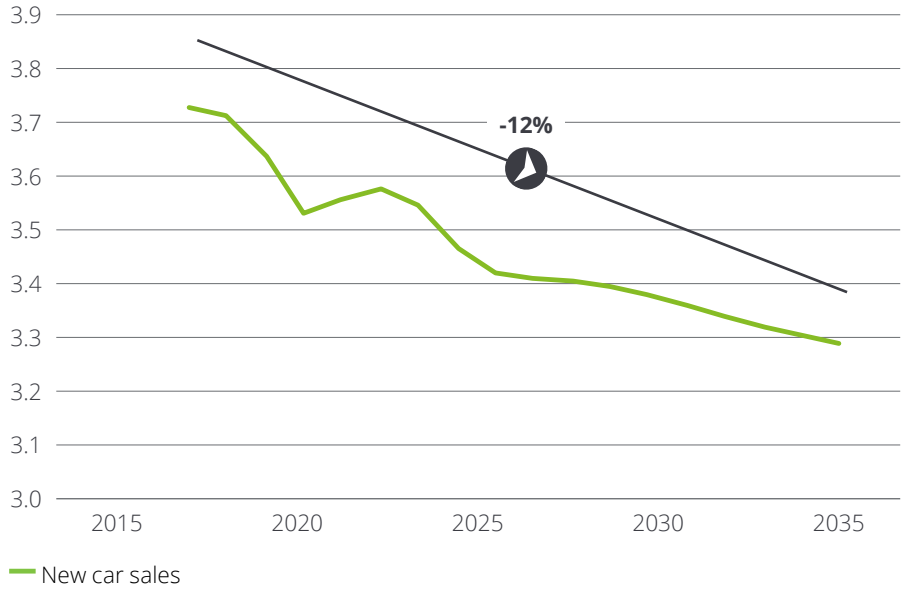
Following influencing factors will negatively affect OEM vehicle sales revenues. The overall vehicle sales market is declining due to socioeconomic factors (aging population, improved public transportation, urbanization).

Overall, per-person vehicle ownership will fall short of 2018 figures, reducing vehicle sales. Our calculations show that autonomous mobility services, for example, will have only a small negative effect on sales volume amounting to about 1%, because:

- high proportion of private customers is expected to use these services as a complement to car ownership
- the effect will very likely be limited to urban areas which are expected to constitute 32% of vehicles in circulation
- autonomous fleet vehicles are expected to depreciate more quickly

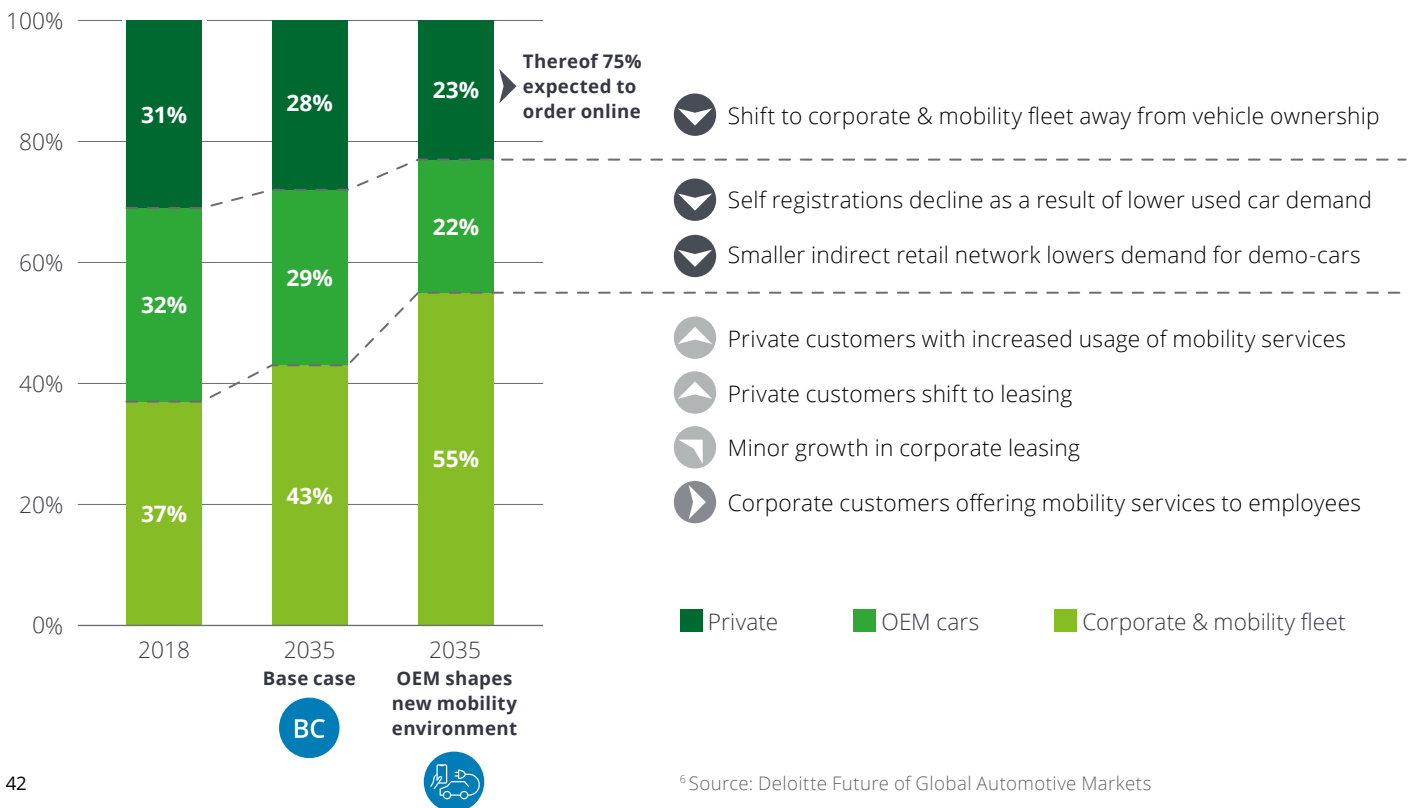
**Fig. 20 – Germany with Western Europe’s largest drop in vehicle sales<sup>6</sup>**

**Total sales in million cars**



The OEM’s used car sales revenues decline due to fewer transactions in this market. The average number of times a vehicle changes ownership throughout its useful life decreases and cars remain increasingly in possession of fleet operators, leasing companies or the OEM itself over their lifecycle.

**Fig. 21 – OEM new car sales according to customer type**



<sup>6</sup>Source: Deloitte Future of Global Automotive Markets

**The shift from private car ownership to corporate fleets, which is already ongoing, will see strong expansion over the next decade.**

Within the private segment, we are already seeing a shift from ownership to leasing. Increased usage of mobility service offerings will further shrink the private segment.

Particularly if trend emergence is strong, OEMs will face a significant shift towards fleet customers. In a future state where the OEM actively shapes the new mobility environment, for example, the corporate and mobility fleet segment will account for 55% of the fleet mix in 2035, up from 37% in 2018. We will also see customer shifts within the fleet segment, for example in corporate customers that are increasingly adding mobility services to their employee benefits.

**Online purchases are becoming more important, with the used car business already leading the way.**

As consumer connectivity grows, so does the consumer's affinity for online purchasing. The connected consumer is no longer reticent to buy expensive goods online, which will scale up online sales. We expect 75% of customers in the private segment to buy their new car online if trend emergence is strong.

The same trends apply to the used car business as well. When it comes to e-commerce, the used car business will be one step ahead of new car sales. This is a result of the emergence of digital pioneers that have accustomed customers to buying their cars online.

**Regardless of the strategic future state OEMs target, they need to build a direct sales model.**

Across all future states, OEMs will need to implement a direct sales model to serve changing customer demand. Fleet customers will constitute the largest revenue share of customer segments, as we have shown, but an indirect sales model will not sufficiently serve this target group. The shift towards fleet customers will continue, requiring a competitive direct sales offering that is flexible enough to adapt to the clients' respective industries, key account distribution structures and logistics optimization.

Beyond that, the OEM retail network in its current indirect model represents a crucial cost and risk factor mainly due to the high capital commitment of real estate and cars.

**In order to capture future revenues in the private customer segment, omnichannel transformation is essential.**

Current retail structures do not reflect customer expectations in terms of convenience, flexibility and transparency. As these expectations vary considerably, OEMs need to establish diverse point-of-sales formats. Highly technological vehicles require in-depth explanations, and a broad customer base will demand individual customer support and advice throughout the buying process. Alternative retail formats that focus on advising customers as opposed to vehicle sales will reflect these demands.

In urban areas, we recommend designing "hub and spoke" networks to centralize customer accounts and secondary activities. The central hub will serve as the primary point of contact for customer service and manage order allocation, perfectly matching point of sales and agents to the customers' needs. A centralized cloud infrastructure will provide transparency along the entire sales funnel.

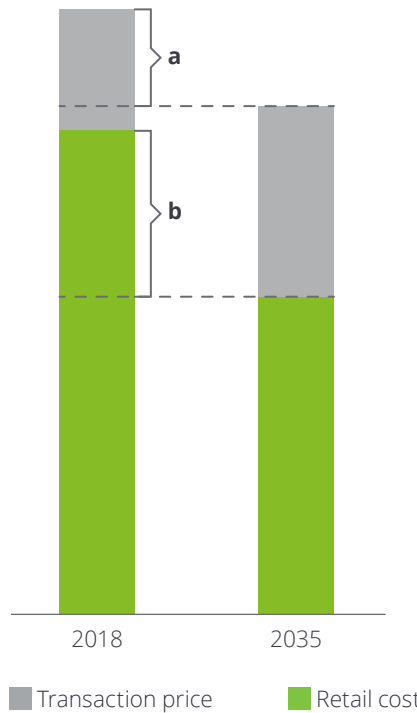
**Direct sales significantly reduce the cost of retail and help avoid intra-brand competition. That said, transaction prices are expected to fall at the same time, because online sales favor price transparency.**

Scaling back and optimizing its stationary retail network will enable the OEM to significantly reduce its cost of retail.

Direct sales will eliminate the intra-brand competition that currently puts downward pressure on retail prices. OEMs can also approach clients with a more personalized offering and yield price premiums in an effective way. On the other hand, as is the case in many other industries, the increased transparency in e-commerce can force prices down. The question is: which of the deltas shown in Figure 22 is larger (a versus b). If retail cost savings exceed the drop in transaction prices, the OEM will see its profitability benefit from direct sales transformation.

**Fig. 22 – Effect of direct sales on transaction price development and costs of retail**

Other price effects, such as increased connectivity level and consumers' shift to premium segment are not reflected in illustration



**a = Price effect**

- Positive due to less intra-brand competition
- Negative due to higher transparency
- Positive due to better customer targeting

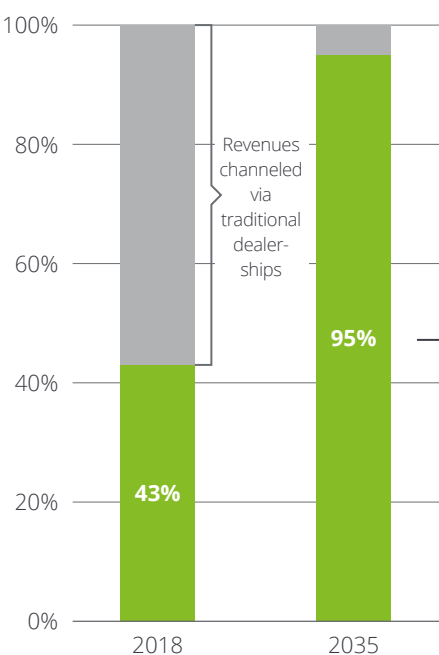
**b = Retail cost economies**

- Retail cost savings from sales network transformation

**If b>a, direct sales transformation will have a positive effect on profitability**

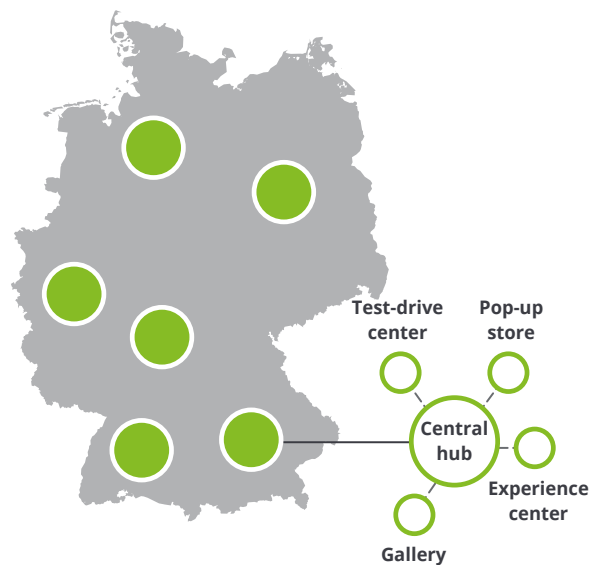
**Fig. 23 – OEM masters omnichannel transformation**

**% share of vehicle sales revenues – direct vs. indirect sales**



- Indirect three-stage distribution via traditional dealerships
- Direct sales via online, Lease Co or agents

Illustrative "hub & spoke" structure launched mainly in urban regions



**Increase due to rising sales to fleet and leasing companies and customers buying online –** Direct sales are facilitated by various alternative retail formats within the stationary network

### Conclusion

Despite a 16% decline in revenues in our base case, vehicle sales will remain an attractive business segment in 2035. However, OEMs will need to implement radical changes to remain competitive.

If OEMs want to dominate their industry in the future, they will need to drastically transform their sales network and ensure full omnichannel integration. This implies setting up a stationary retail network that is willing and able to facilitate direct online sales. One restructuring model for the current stationary network could, for instance, be a “hub and spoke” network in urban areas. The hub takes on the capital commitment from other points of sale, which subcontract various other retail formats to agents. A central IT backbone to store centralized customer data accounts will support the integrated omnichannel offering.

Retail network transformation is long overdue and should be implemented as soon as possible. OEMs need to pursue a new contractual framework with their traditional dealerships and enter into long-term partnerships with a carefully curated stable of large-scale retail groups to sustain nationwide coverage. All customer service employees and the sales force will have to undergo extensive training in software (ADAS system, user platform, etc.) and hardware (EV powertrain, sensors, telematics, etc.) to provide the much-needed advice that customers demand. Transformation need for vehicle sales cannot be considered standalone but needs to be implemented holistically with retail network transformation in aftersales.

OEMs need to develop strategies to capture market share or increase bottom line efficiency to maintain profitability in a shrinking market.



# Aftersales

## Summary

- CASA trends will cause substantial decline in current aftersales business – alternative drivetrains in particular are expected to put 12% of current total OEM profits at risk
- Among all aftersales revenue streams, we expect maintenance & services to incur the biggest losses in revenue and profit - current retail network capacity significantly higher than future demand
- The effect of CASA is expected to be lower on vehicle age seg. II+, which is currently dominated by the independent aftermarket
- Securing the customer base in seg. II+ is becoming critical – capturing market share in IAM parts with special used car service offerings or market entry strategies depending on OEM positioning
- Fleet customers gain significant relevance especially for OEMs with a customer base mainly in seg. I and II – positive change driven by full-service offerings and user chooser services

**Fig. 24 – Revenue growth in % from 2018 to 2035 of proxy OEM by revenue streams**

	2018 – revenue m €	Base case	OEM shapes new mobility environment	OEM masters omnichannel	OEM sells mainly via third-party online agents	OEM supplies third-party corporate and mobility fleets
Workshop	819	-60%	-10%	-7%	-65%	-86%
Maintenance & services	300	-84%	-61%	-46%	-80%	-99%
Wear & tear	205	-59%	10%	12%	-60%	-96%
Repair	165	-29%	59%	40%	-43%	-49%
Accidents	113	-48%	-13%	-11%	-70%	-84%
Upgrade & Accessories	37	-51%	-8%	-1%	-54%	-90%
Parts trade	100	-24%	-43%	-16%	-7%	1%
End-of-life	1	20%*	30%*	22%*	12%*	10%*
<b>Total</b>	920	-55%	-9%	-7%	-58%	-76%

Numbers may not add up due to rounding

**Accounting for approximately 7% of total OEM revenues and 24% of total OEM profit today, the aftersales business and its future development is of significant importance.**

The outlook for today and the future is not favorable – alternative drivetrains as well as new competitors, customers and sales channels call for immediate action:

Vehicles in age segment (seg.) I and II make up the largest share of the current OEM aftersales business, while the independent aftermarket (IAM) has achieved a significant market share in age seg. II+.

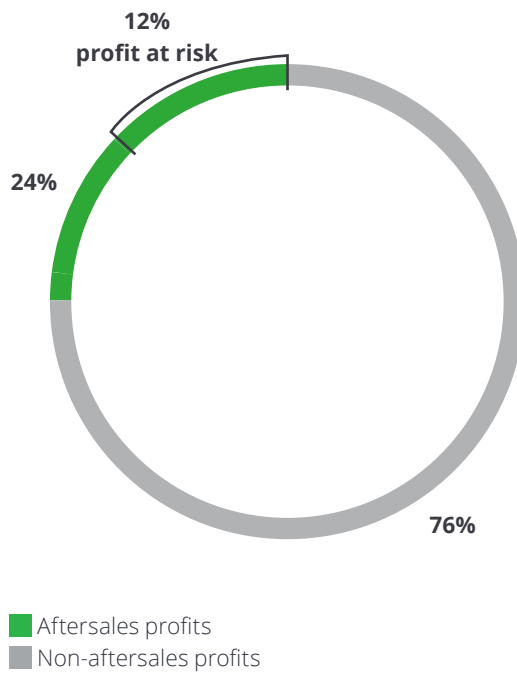
CASA trends will lead to a substantial change in the vehicle base currently addressed by the OEM, due mainly to alternative drivetrains in general and electrification in particular.

We also see new customer groups positioning themselves between the OEM and the end customer, which will shrink profit pools and further challenge the OEM's price competitiveness. Increasing customer expectations, increasing relevance of fleet customers and greater price transparency through online channels will increase pressure and demand new solutions.

Given the current dynamics, OEMs are hit first and hardest by CASA trends, putting up to 12% of current OEM profits at risk.

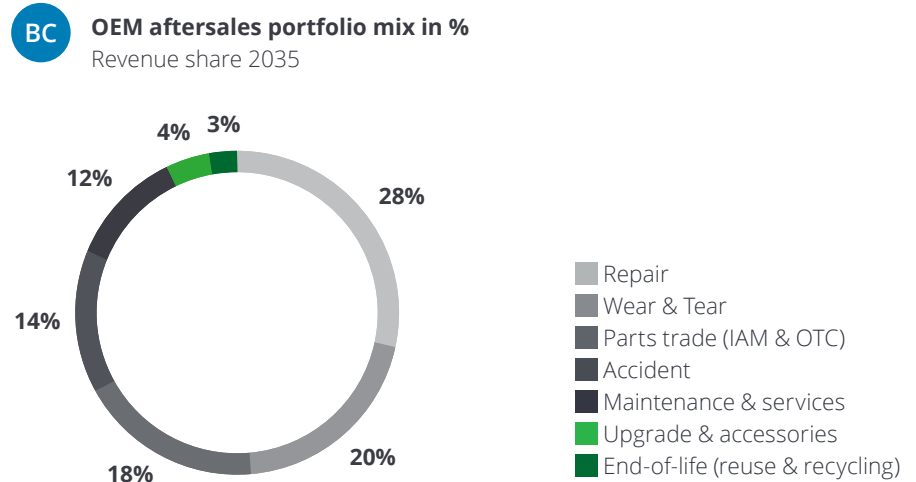
**Fig. 25 – Given the current dynamics, OEMs are hit first and hardest by CASA trends, putting up to 12% of current OEM profits at risk.**

**BC** profit at risk as % share of total OEM profit in 2018  
Profit share 2018



In the following, we outline the impact of CASA trends on the OEM aftersales business, first drilling down into the service portfolio mix and then presenting actions OEMs can take to ensure these urgently required measures are implemented.

**Fig. 26 – Aftersales revenues 2035**

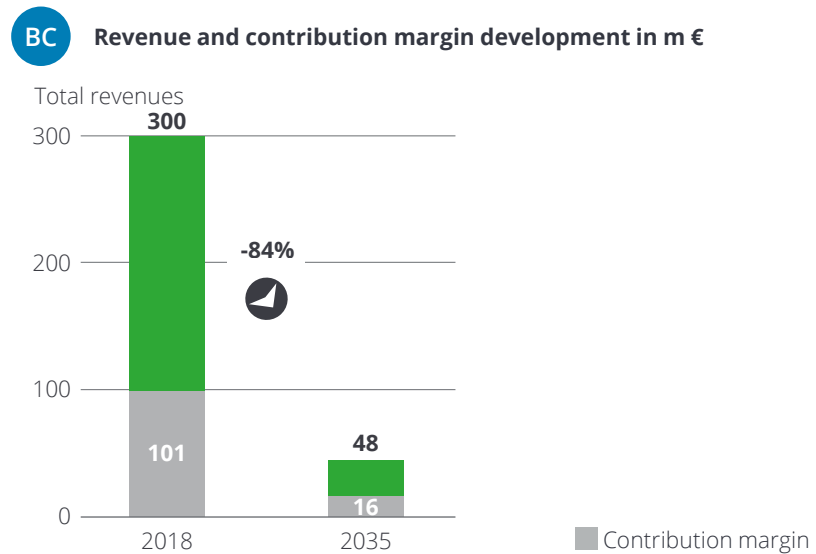


**Maintenance & services revenues dramatically decrease due to growing share of electric drivetrains.**

The future dominance of alternative drivetrains for OEM customer with vehicles in seg. I and II will cause a significant 84% decline in traditional revenues primarily coming from ICE-related services (e.g. oil service).

Increased connectivity level in cars with “over-the-air” functionality and software updates allow for a minor increase in additional revenue, but will not be able to offset the decline.

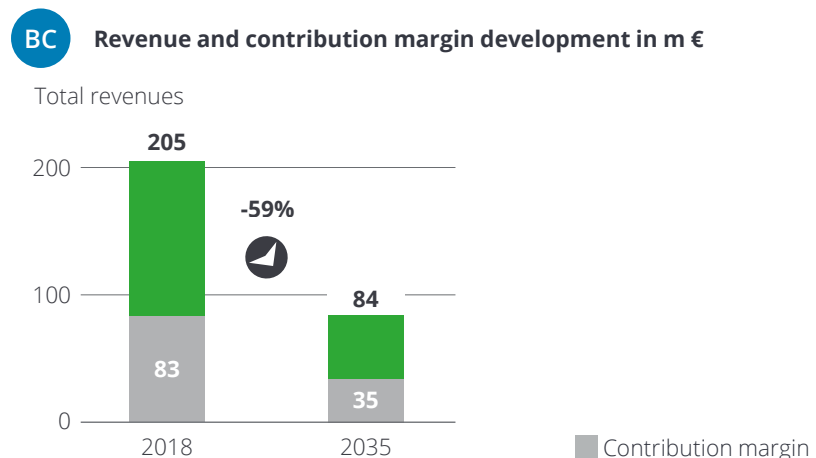
**Fig. 27 – Maintenance & services**



**Tires as the only growing product segment in the wear & tear category cannot compensate for the decrease of other wear parts services.**

As one of the few parts with a slight growth potential, tires are expected to generate more revenue due to the increase in drivetrain torque and car weight. Other revenues within this category are expected to fall significantly due to fewer moving parts with alternative drivetrains and increasing quality of parts, causing an overall revenue decline of 59%.

**Fig. 28 – Wear & tear**

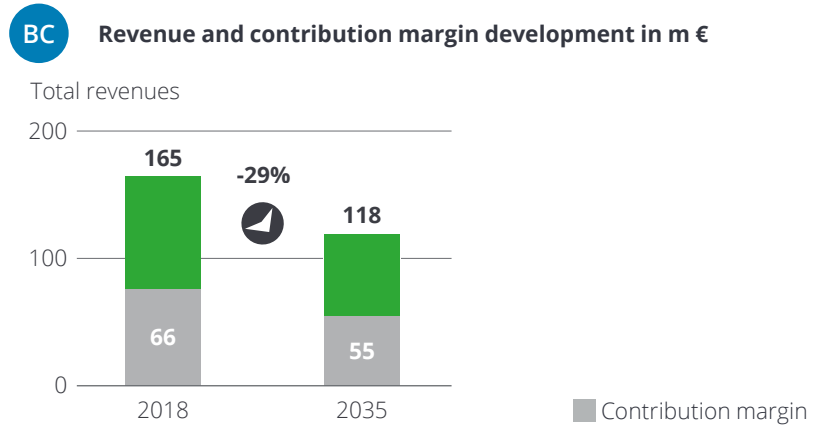




**Repair revenues decline due to lower vulnerability of alternative drivetrains and increased connectivity of cars.**

Individual repair costs are expected to increase due to the higher complexity of vehicle platforms. That said, overall repair revenues will still decline by 29%, as alternative drivetrains are less repair-intensive and breakdowns become less likely through the use of effective predictive maintenance systems and over-the-air software fixes.

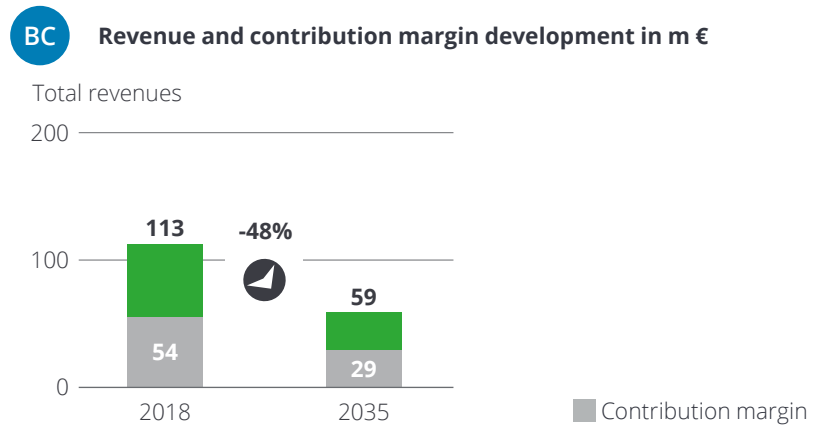
**Fig. 29 – Repair**



**Accident revenues decline mainly as a result of autonomous driving advancements.**

Accident rates are expected to drop significantly as increased levels of ADAS improve human error prevention. This is the main cause of the 48% decline in revenues in from 2018 to 2035. Individual repair costs are expected to increase due to higher complexity of vehicle platforms and sensor density.

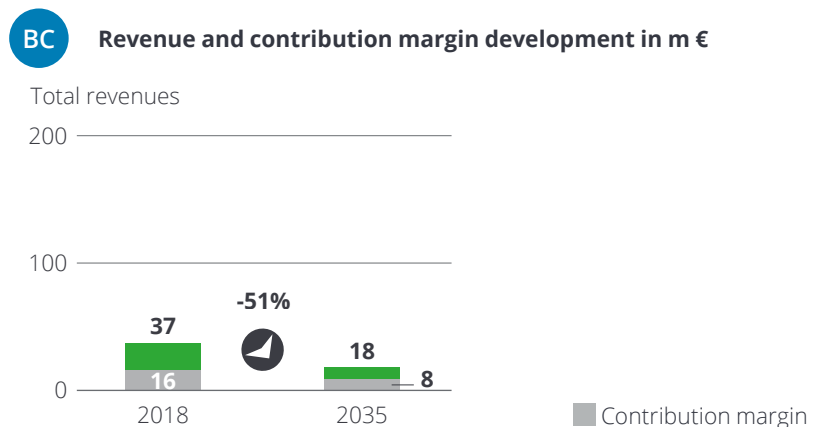
**Fig. 30 – Accident**



**Decline in revenues stems mainly from fleet customers representing largest customer share and overall car parc decline.**

Considering the fact that fleet operators will represent the largest customer share of the future OEM, revenues in upgrade & accessories will decline. OEMs pre-fit lifecycle-relevant technology in fleet vehicles and integrate connectivity functions into vehicle platforms. Regulatory changes will inhibit the OEM's ability to modify and upgrade individual vehicles. Slight growth is expected in upgrading services for connectivity functions and e-mobility accessories.

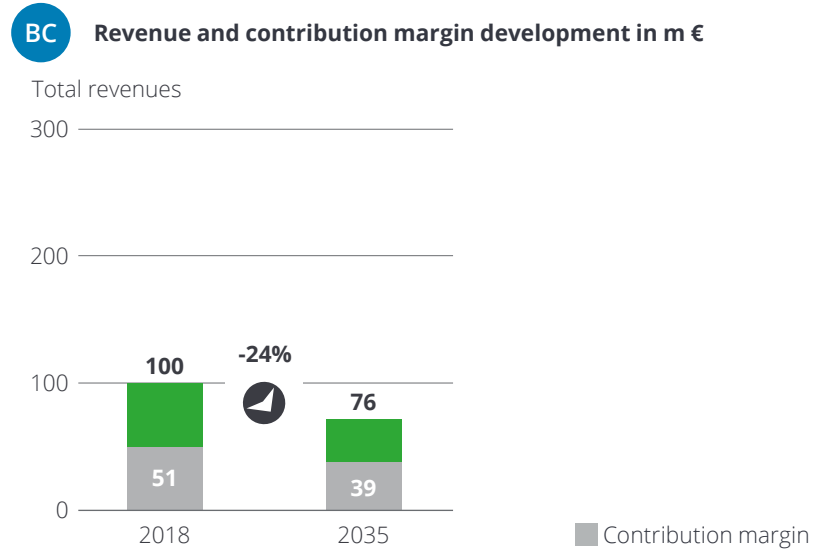
**Fig. 31 – Upgrade & accessories**



**Spare parts sales to third parties remain the only area where the CASA impact is moderate until 2035.**

The parts trade looks set to remain more stable, as every car in the OEM lot is a potential target. Vehicles on the market now will be in Seg III+ until 2035, enabling the OEM to expand IAM parts sales slightly in certain parts categories thanks to the current speed of innovation and frequency of change.

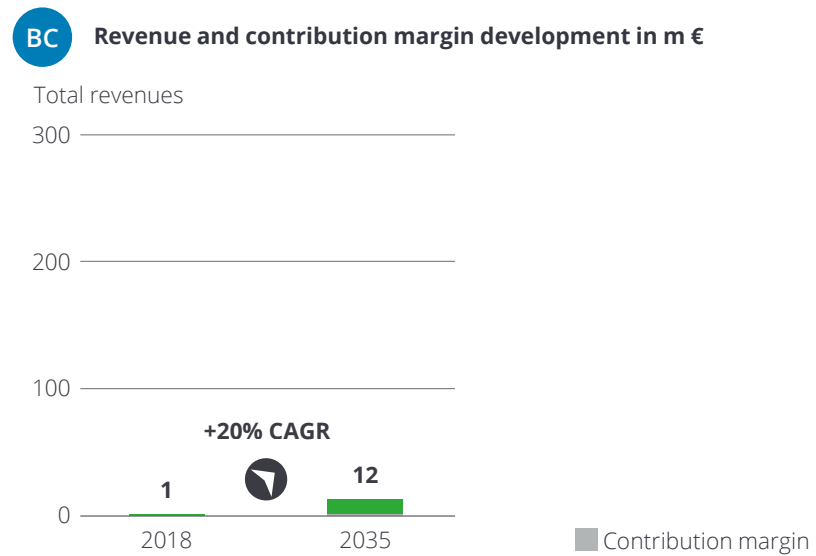
**Fig. 32 – Parts trade (IAM & OTC)**



**Battery reuse becomes an increasingly relevant business model – other resources/returns remain at current levels.**

Reusing parts opens up a completely new revenue stream for parts sold to third-party OEMs and industry outsiders (excluding the remanufacturing business). Batteries are the most valuable assets for third-parties, as they can be used to store energy. Recycling is conducted to meet regulatory requirements but not pursued for a commercial purpose within the OEM organization.

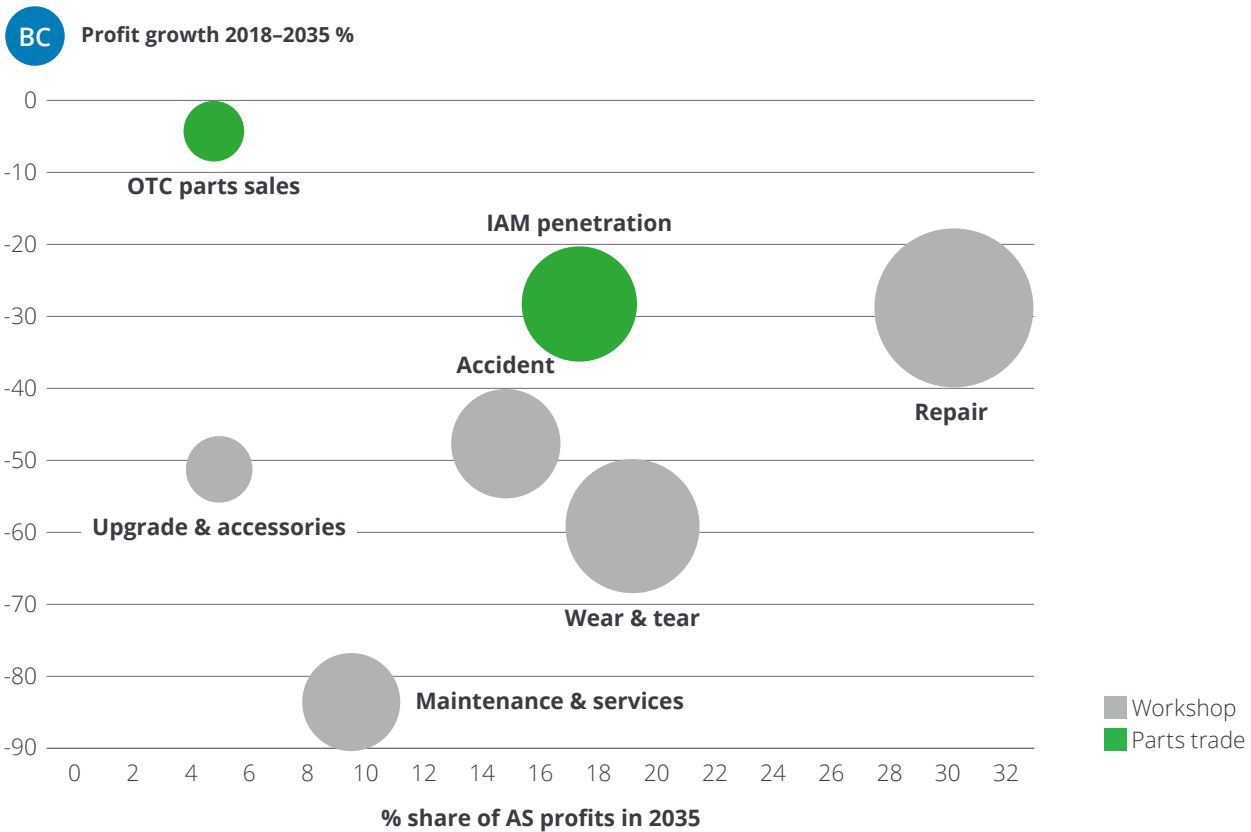
**Fig. 33 – End-of-life (reuse & recycling)**



**With a significant decline in most revenues, emergence of CASA trends puts up to 12% of current OEM profits at risk.**

Total OEM profit pools will decline thanks to the negative effects of the trends mentioned. The shared mobility trend is also expected to exert strong negative pressure on the prices of the OEM's current aftersales portfolio. This comes from an increased amount of fleet customers and a consolidation of the customer landscape, which gives them stronger negotiating power.

**Fig. 34 – Profit development of OEM revenue sub-streams 2018–2035\***



Bubble size indicates relative revenue size in 2035

\* End-of-life revenues not included due to profit growth of 11.535% from 2018 to 2035

### Priority actions for OEMs in aftersales.

The negative impact of CASA trends on revenues and profits is evident across all future states, even where trends stagnate. That said, OEMs can minimize the negative impact if they maintain industry dominance. In the following, we present four measures designed to increase OEM market dominance and control user touch points.

#### To cope with future challenges, OEMs need to recalibrate their service offering, market segment, retail network and sales channels.

Reinvention of the current business model offers promising opportunities to maintain profitability and drive new growth. OEMs must also commit to significant investments in the digital space. Whether the following courses of action are relevant or applicable will also depend on where the OEM sees its future positioning and value chain focus.

Fig. 35 – Measures



#### Recapture seg. II+ vehicles from independent aftermarket.

##### Capture seg. II+ opportunities with relevant services matching the price sensitivity as they reflect largest profit potential.

The revenue potential is significant in seg. II+, where customers are the private second and third owners of modern but not high-tech vehicles. The strategic approach the OEM chooses will depend on its core strategy and size.

##### 1. Increase the share of seg. II+ vehicles in the OEM's active customer pool.

Current look-and-feel standards or in-shop experience do not justify the price premium over IAM.

OEMs need to be willing and able to adapt to the demands of customers that own older vehicles. Understanding individual customers, the critical stages on the customer journey (when to entertain, how to monetize) and the future value should be factored into relevant offerings. Communicating convincing messages using the customers' preferred channel will raise awareness and change price perceptions. Low spec, white-label workshops or large service factories could be an effective response to competition but location and service offering provided need to be defined carefully.

##### 2. Enter and penetrate IAM parts market.

By joining the IAM market as a "supplier", OEMs enter an established, well-managed and professional business segment, where they will have to choose the right channel and partners and offer additional services. This option requires scale and an alignment with the OEM's own network strategy.



#### Transform retail network – monetize efficiency improvements.

##### Transform the retail network in terms of the process model and the level of support provided by data-driven insights and IT.

With such a large spread of capabilities on offer, today's workshop landscape risks not being able to cope with future market requirements.

New process models with workshops providing best core services, service providers supporting pre and post-repair process support and the OEM at the core is key to capturing market opportunities effectively.

To establish a fully competitive network, we expect further consolidation at the workshop level with service offerings aligned with customer demand and actual vehicles in the surrounding area. Centralizing certain functions is expected to help OEMs leverage economies of scale.

In its central hub, OEMs act as the primary point of contact for customer service and manage order allocation, perfectly matching their service offering to the customers' needs. A centralized cloud infrastructure will provide transparency along the entire aftersales funnel, enabling data driven forecasting and early warning systems and improving inventory levels.

3

**Focus on the customer segment “fleet” as the new key player in seg. I. With the focus on fleet customers, OEMs must address their needs with highly customized and fully integrated services.**

As the largest customer segment for new car sales, fleets will have specific requirements for aftersales services. The current portfolio needs to be adapted to their highly specific needs and should address the key purchasing drivers of fleet operators.

Fleet operators will value any services that improve the total cost of ownership and reduce complexity, e.g., a full-service offering that enables them to focus on their core business. The integration of aftersales and asset management brings various advantages from a cost and service perspective, such as an improved residual value management.

A combined data pool with access to a telematics platform, for example, can be used to improve remarketing, fuel management, repair management, etc. and as a result reduce pressure from pure price competition.

Beside fleet managers, services dedicated to user choosers can create a pull effect towards OEM workshops.

4

**Capture user touchpoints to increase service penetration. Gain access to customer data and capture touchpoints to maximize direct communication and provide targeted service offerings.**

Workshops become increasingly dependent on external online agents and the OEM's vehicle-centered aftersales business model will no longer be sufficient to retain customers in the proprietary aftersales ecosystem.

Apart from online agents, various other actors will position themselves at the user interface and aim to channel future aftersales revenues.

The OEM needs to first obtain direct access to user data and match existing vehicle information from each unit in operation to a specific customer, then hold future user touchpoints and offer a broad and contemporary channel portfolio and finally stay in active contact with customers offering specific services and communicating via the preferred channel. A centralized customer account is used to ensure highest level of service and convenience.

From the user perspective, a consistent omnichannel experience produces positive top-line and bottom-line effects.

**Conclusion**

Current aftersales business faces a decline in each of our future states. In our base case for industry trend emergence, 12% of total current OEM profits are at risk. Particularly with the high certainty in the trend toward alternative drivetrains, we see aftersales transformation as a major priority for OEMs.

In order to keep the negative impact on revenues and profits as low as possible, we have suggested four priority actions for decision makers to increase market share against independent aftermarket providers and increase dominance over new digital challengers. In summary, these comprise recapturing seg. II+ from the independent aftermarket, transforming the retail network, shifting focus to fleet customers and capturing user touchpoints to increase service penetration.

OEMs need both, to optimize existing business by increasing penetration of seg. II+ and significantly transform retail network and processes.

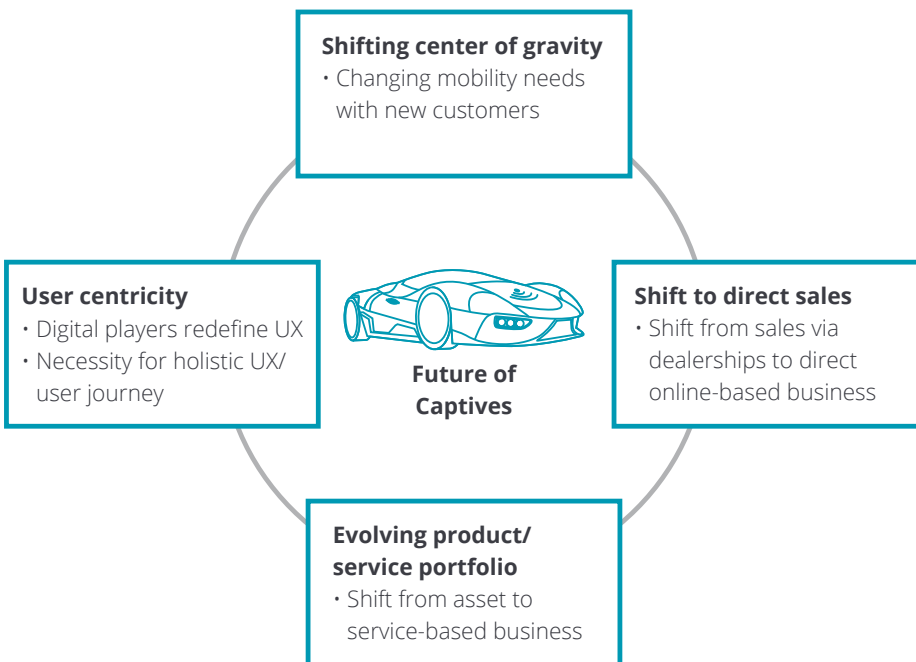


# Financial services

## Summary

- Financial services will see a shift from asset-based to service-based business
- Performance will, however, still be strong in the traditional asset-based business as the market moves to multi-brand leasing and effective residual value management
- Payment services are one of the key enablers in the OEM mobility offerings of the future
- In line with vehicle sales and aftersales, financial services will shift from sales via dealerships to direct online-based business

Fig. 36 – Key findings of “Future of Captives” study



## The “Future of Captives” study sheds light on the possible developments in the captive industry as it progresses towards 2030.

The captive industry is on the verge of the most intense change in its history. To support our audience in making solid decisions and shaping future business, we have also developed a financial model for the captive industry. This allows us to quantify the effects on a proxy captive organization to give our readers even more tangible insights.

**OEM currently generates most revenues with asset-based business: credit, leasing and wholesale.**

In 2018, initial offerings in service-based business, such as insurance or payments, have already been established but not yet globally scaled. These offerings do not currently generate noticeable profits, while insurance is the cash cow of the service-based business.

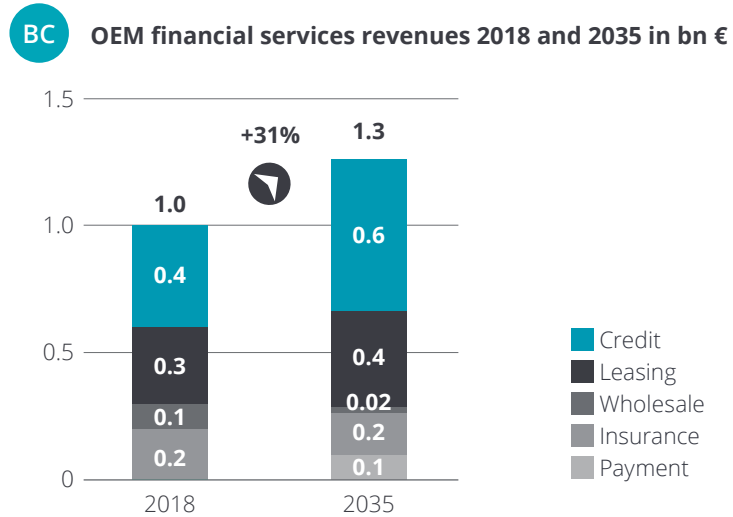
**In 2035, multi-brand leasing and residual value management will ensure that traditional asset-based business maintains its strong foothold.**

The OEM will achieve slight growth in revenues with traditional asset-based business and offset the declining used car sales market by engaging in residual value management and building additional business models around used-car remarketing. Furthermore, it is expected to succeed in increasing leasing and credit sales penetration within the new car sales segment.

Unlike the past, the OEM will expand its offering to include multi-brand solutions for future customers. The emergence of Mobility as a Service in particular will give multi-brand offerings paramount importance in attracting a large customer base and addressing a wide range of customer preferences and use cases. In 2035, the multi-brand segment is expected to account for a significant amount of total captive assets.

For a detailed analysis of the future development of financial services and captives in general, we recommend reading the Deloitte studies: "Future of captives – what will be the core businesses for automotive captives in 2030?" and "Fleet management in Europe – growing importance in a world of changing mobility" .

**Fig. 37 – Financial services revenues**



**Proprietary payment functionality is a key enabler for the OEM's future mobility offering.**

Moving toward 2035, the OEM will focus more on service-based business and dominate the financial products and services market in the future mobility landscape by owning the payment infrastructure, offering full-service leases and funding multi-brand vehicles.

The cost-savings and recurring income generated in the traditional businesses will be invested in building digital business models adapted to new mobility needs. In 2035, the OEM generates € 77m from payments in the base case. The payment services provided for mobility and connected services are separate to the existing business and yield revenues from all micro-payment transactions throughout the entire user journey.

Nearly 50% of today's "Gen Y" consumers like using a mobile app for transport and micro services. On-demand features will

make these apps more important. With a greater volume of transactions across the entire mobility journey (see illustration), payment services will become a key enabler if the OEM succeeds in shaping the new mobility environment. An integrated mobile payment solution is crucial for seamless multi-modal mobility, gives the OEM access to customer data and saves costs by avoiding transaction fees to external payment providers.

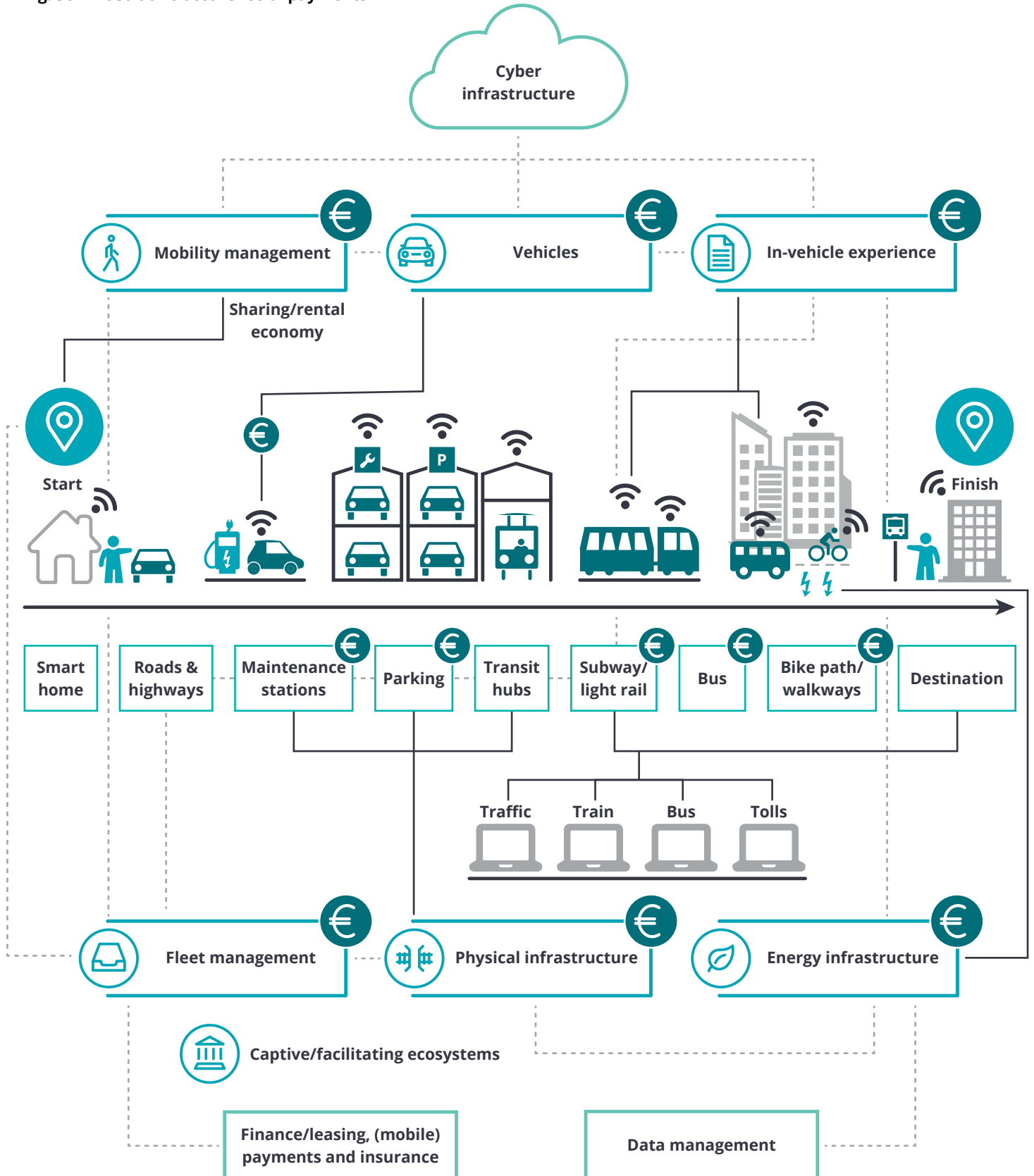
The payment functionalities provided also enable the OEM to leverage user data that will contribute to revenues in the Car as a Platform segment and to the overall market-driven innovation of the OEM's existing product and service portfolio.

The insurance revenue sub-stream will also benefit from an increase in the volume of data being collected. The OEM is able to offer attractive and flexible-on-demand and pay-per-use offerings with adjustable insurance rates.

An integrated mobile payment solution is crucial for seamless multi-modal mobility, gives the OEM access to customer data and saves costs by avoiding transaction fees to external payment providers.



Fig. 38 - Illustrative occurrence of payments





# Mobility as a Service

## Summary

- In the future state where the OEM shapes the new mobility environment, it can yield significant revenue growth from mobility-on-demand which makes a primary contribution to the total compound annual growth rate of 14% in Mobility as a Service until 2035
- Fleet services benefit from shared mobility and expand to include more multi-brand offerings
- Revenue growth expected in infrastructure services driven mainly by the emergence of alternative drivetrains
- Becoming “a full-service mobility provider” offers substantial synergies, as OEMs can then control end-to-end user touchpoints and optimize costs throughout all revenue sub-streams. This would require OEMs to undergo a massive transformation and not every OEM will want to go this route to avoid sunk cost investments

## **Mobility as a Service in particular will become relevant if the emergence of CASA trends is strong and only a few players capture the market potential.**

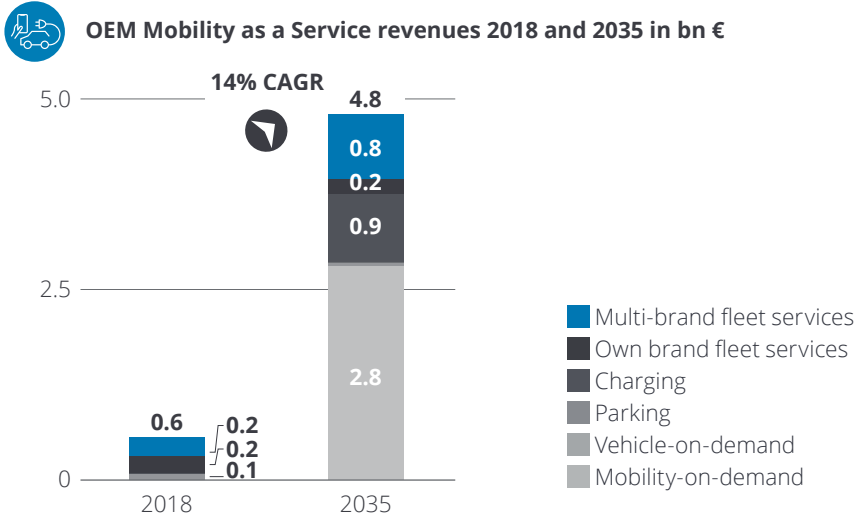
We expect large consolidation in this business segment, as mobility services and infrastructure services require economies of scale and face a fiercely competitive environment. From a user perspective, we also expect full-service integration to move increasingly to a single user platform, which will boost the “winner takes all” market dynamic despite hyperlocal conditions. In this context, we only look at the future state where the OEM shapes the new mobility environment, because mobility services benefit from a strong emergence of industry trends and strong OEM participation in this new business segment is given.

## **Mobility as a Service revenues of the proxy OEM today consist of fleet services and very few vehicle-on-demand offerings.**

Currently the vast majority of revenues (85%) in Mobility as a Service comes from the operation of fleet services for corporate customers. These include invoicing, vehicle logistics and leasing-related services, among other services. The mobility services business is growing, yet without generating significant profits.

We believe, however, that the investments being made today will pay off in 2035, if the OEM shapes the new mobility environment, as the future simulation demonstrates.

**Fig. 39 – Mobility as a Service revenues (OEM shapes new mobility environment)**



Mobility as a Service will become especially relevant if the emergence of CASA trends is strong. However, only a few players will capture the market potential.

**The emergence of CASA trends will facilitate Mobility as a Service in all revenue streams, making it a large revenue contributor to the OEM.**

In the following, we will outline the main effects of CASA disruption on Mobility as a Service revenues.

**Shared mobility**

Firstly, shared mobility promotes mobility services, as the trend involves shifting toward usage-based mobility rather than vehicle ownership. Increased asset efficiency and higher utilization reduce mobility prices for users which again increases utilization.

In addition to that, fleet services benefit from the shared mobility trend as fleet customers gain market size (mobility and corporate fleet customers are expected to account for 55% of new car sales when the OEM shapes the new mobility environment).

Shared mobility also has a positive impact on charging revenues: battery electric vehicles outperform traditional engines in terms of total cost of ownership when vehicles are in frequent use, making it the key powertrain for shared vehicles.

**Connectivity**

Mobility as a Service will benefit strongly from connectivity being a key enabler for various revenue streams.

Fleet management systems have become more advanced and fleet service customers benefit from the increased convenience (e.g. vehicle maintenance managed predictively, flexible individual financing and vehicle selection possibilities).

Connectivity also lays the foundation for mobility services. Routes and passenger pooling can be highly optimized, which ultimately benefits the end user's mobility experience. A seamless payment functionality and communicating fleet vehicles contribute further to user satisfaction (e.g. decreasing passenger waiting times).

Infrastructure services also benefit from connectivity. For example, smart parking solutions allow for revenues in on-street and off-street parking by connecting users with parking spaces.

**Alternative drivetrains**

Alternative drivetrains help drive the emergence of mobility services due to the benefits in total cost of ownership for alternative drivetrains when the vehicles are frequently in use.

Charging also benefits from the emergence of alternative drivetrains. In a future state where the OEM shapes the new mobility environment, it might sell home charging boxes to private customers, operate part of the public charging infrastructure and receive a commission fee from linking recommended charging points to users on a user platform.

However, the market will be very competitive (utility providers, tech players, start-ups, other OEMs) and major initial investments are demanded by the OEM to become dominant.

**Autonomous driving**

Autonomous driving will be the key driver for mobility services, not only in terms of enabling them but also transforming them in their essence. When the emergence of this trend is strong, the number of shared mobility users is expected to rise exponentially with the advance of autonomous driving technology falling passenger costs per km (as the driver currently accounts for half of all ride hailing costs) and more widespread access to motorized mobility services for new consumer groups (e.g., seniors and young people).

Once ADAS level 5 has been achieved, free-floating car sharing and ride hailing converge in a single service provided by autonomous taxis, which are designed for individual trips for one person.

The ride-pooling segment will be served by robo-shuttles, which cost less than robo-taxis and also offer less flexibility and comfort. They are designed for multiple passengers and compete strongly with public urban transit.

Beyond that, once that we have achieved ADAS level 5, we still expect subscription-based owning, car rental, P2P, station-based car sharing and ride sharing to exist as mobility service concepts, though they will be considered niche markets relative to robo-taxis and robo-shuttles.

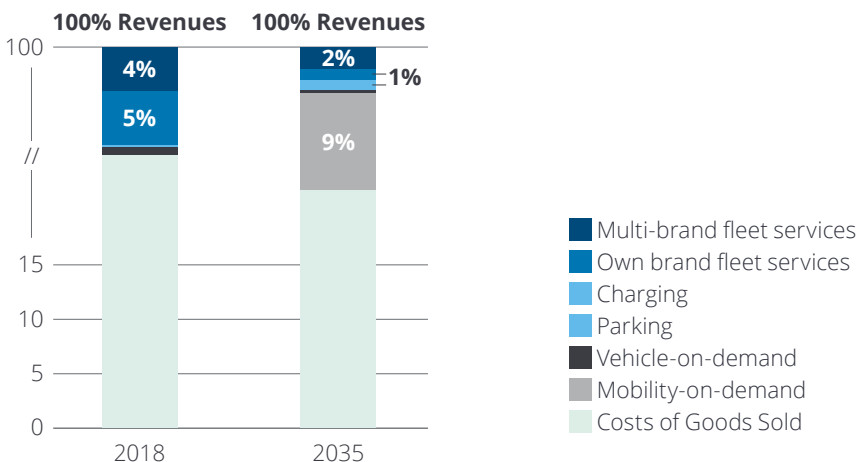
All in all, autonomous shared mobility services is expected to remain a primarily urban phenomenon with many hyperlocal mobility solutions.

**Main effects of ADAS level 5 on mobility services**

- With extensive ADAS level 5 adoption, vehicle-on-demand becomes obsolete, making way for mobility-on-demand
- The elimination of driver costs reduces passenger costs per km and strongly increases demand for mobility services
- Larger user group of motorized mobility (young people, seniors, etc.)
- Ride hailing and free-floating car sharing converge (robo-taxis)

**Fig. 40 – Mobility as a Service profits**

 **Total accumulated contribution margin as % of Mobility as a Service revenues in 2018 and 2035**



**In 2035, the total German market for autonomous taxi and shuttle services is estimated to be roughly €16.7 billion if the emergence of CASA trends is strong.**

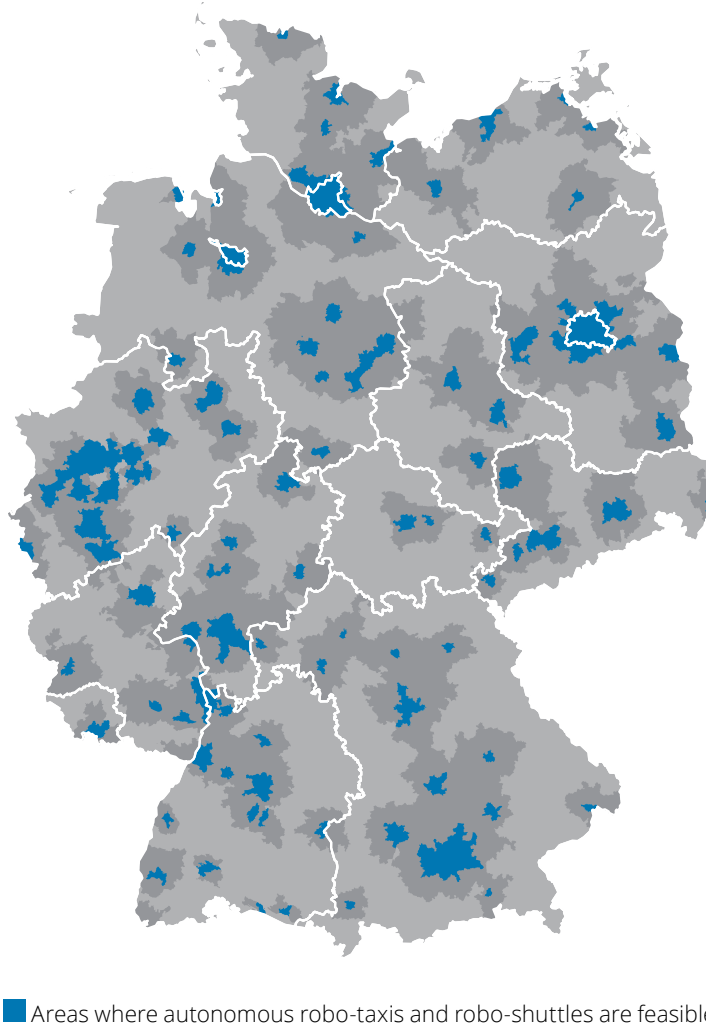
A detailed elaboration on the future demand of autonomous taxis and shuttles is provided in our recent study\*. With autonomous driving at the center of a vibrant discussion in recent years, that study answers today's key questions on the subject of autonomous mobility.

Our calculation of the market size factors in several assumptions. An average trip would cost €1.50 in a robo-shuttle and €3.40 in a robo-taxi. Prices were derived from a cost analysis including depreciation and maintenance at 60% of total fleet costs. The passenger waiting time would be no more than 10 minutes at peak times.

By the means of conjoint analysis, expert interviews and our interpretation of the socio-economic data, our key findings were as follows:

- It would be feasible to provide autonomous taxis and shuttles in 110 urban regions – 7% of Germany's surface area (sizes ranging from Speyer with 50,000 inhabitants to Berlin with 4.1m inhabitants)
- 33.1m Germans (roughly 40% of total population) would have access to autonomous taxis and shuttles – young people and senior citizens in particular would drive growth in the demand for motorized mobility
- The population served would use autonomous taxis and shuttles for approximately one-third (32%) of their trips-per-day, representing a total market potential of roughly €16.7 bn

**Fig. 41 – Distribution of robo-taxis and robo-shuttles in Germany in 2035**



**Fig. 42 – Definition of autonomous services under consideration**

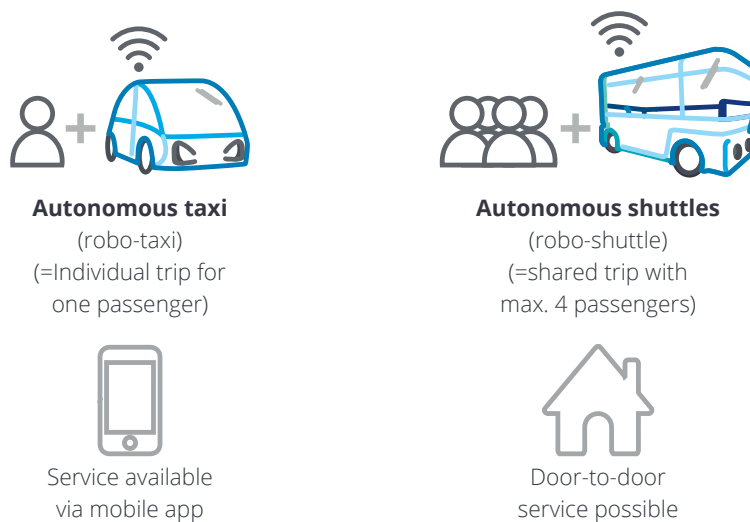


Fig. 43 – Mobility services concepts today and in the future with CASA trends disruption

Mobility service	Concept today	Future evolution with trends disruption	
<b>Personal</b>  <b>Vehicle*-on-demand</b> Passenger drives	Subscription-based owning	Membership at recurring fee with flexible access to a variety of cars every few months	Increasingly taking share away from leasing driven by a trend toward flexibility and rapidly changing preferences
	Rental	Vehicle renting for flexible periods of time, ranging from a few hours to a few weeks	Use case still valid with ADAS level 5, enables users to access the same car for a long period, e.g., for long-distance travel
	P2P sharing	Peer-to-peer car sharing involves private individuals lending cars to one another with platform providers acting as service agent	Market in decline as private car ownership falls – though ADAS level 4/5 car owners more willing to share cars
	Station-based car sharing	Car lending service by fleet operator where vehicle must be picked up and returned at a specific location	With ADAS level 5, the market is in decline because it becomes less competitive compared to free-floating – still valid for specific use cases, e.g., long-distance travel
	Free-floating car sharing	Car lending service (short trips) in cities where cars are picked up and brought back at any location within service area	Market growing – cars become robo-taxis with ADAS level 5 operating in urban areas with door-to-door service
	Ride sharing	Form of P2P sharing where drivers provide unused car space to passengers for specific rides and drive themselves	Market in decline as private car ownership falls – though ADAS level 4/5 car owners more willing to share cars
<b>Mobility-on-demand</b> Passenger is driven	Ride hailing	Chauffeur service by professional drivers usually in urban areas and booked by private individuals	<div style="border: 2px solid blue; padding: 10px; display: inline-block;"> <p><b>Robo-taxis</b></p> <hr/> <p><b>Robo-shuttles</b></p> </div> <div style="border: 2px solid blue; border-radius: 50%; padding: 10px; display: inline-block; margin-left: 20px;"> <p><b>Market size of ~€16.7 bn in Germany in 2035</b></p> </div>
	Ride pooling	Chauffeur service by professional drivers usually in urban areas for multiple passengers going in the same direction	
<b>Usage</b>			

With ADAS level 5 vehicle-on-demand becomes mobility-on-demand as passenger is driven

Autonomous taxis and shuttles would be feasible in 110 urban regions – 7% of Germany's surface area – and 40% of the country's total population would have access to their services.

\*Vehicle refers to passenger cars including robo-shuttles (excluding bikes, scooters, etc.)

**Strategic implications**

In this chapter, the proxy OEM was active across all revenue streams pursuing a holistic portfolio strategy. In this overview, we present and evaluate briefly which different strategic approaches an OEM might pursue.

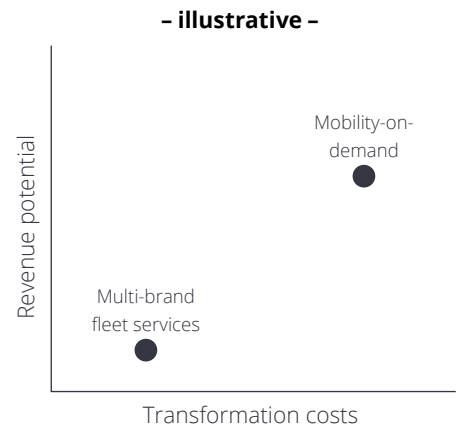
**Fig. 44 – Mobility as a Service portfolio strategies and evaluation**

**Selective**

Focus on select services based on such criteria as early return on investment, ease of implementation or urgent customer demand. That narrow portfolio strategy might be appropriate for initial trials, as it offers a low risk of false investments and ideally generates quick wins.

We do not, however, recommend this path, as it lacks long-term business cases and synergy effects in sales and costs, while also ceding control of user touch-points to competitors since it fails to cover the entire mobility user journey.

**Strategic evaluation** ★☆☆☆☆



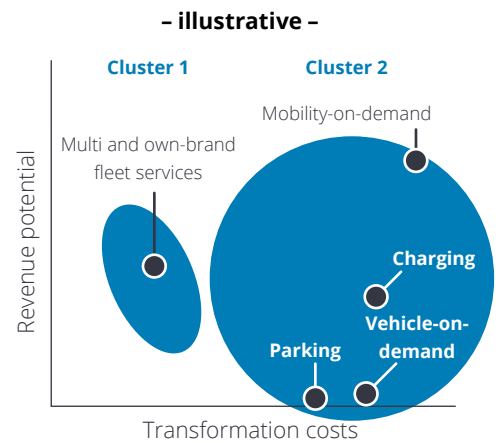
**Clustered**

Selection of services that are immediately interdependent and therefore:

- Facilitate synergies
- Ensure exclusive user access and mutual market penetration (e.g., charging and mobility-on-demand)

The clustered portfolio reduces complexity in the service offering and enables both organizational capabilities and infrastructure to be shared. However, it still has the same disadvantages as in the selective portfolio strategy and lacks long-term business cases.

**Strategic evaluation** ★★☆☆☆

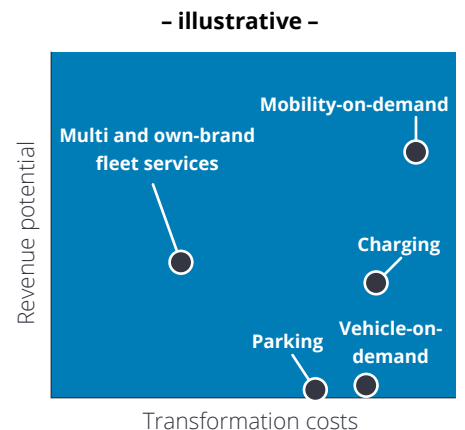


**Holistic**

Becoming a full-service mobility provider enables substantial synergies through control of end-to-end user touchpoints and reduces costs in all revenue sub-streams. More importantly, it allows OEMs to cross-sell services on a joint user platform. This is therefore the most favorable portfolio strategy.

It is not necessarily the case that an OEM will develop and provide each service by itself, establishing partnerships or outsourcing services may be a valid and efficient way to reduce complexity or costs.

**Strategic evaluation** ★★★★★





## Conclusion

Mobility as a Service can offer extensive revenue potential, though widespread market consolidation may prevent some OEMs from capturing that market. New "digital native" tech players use their capabilities to play a significant role in the market and become the main competitors to OEMs.

Fleet services have strong market potential, though they require only relatively moderate transformation as the infrastructure required is partially already in place. OEMs need to design a competitive product and service portfolio that meets fleet customer demands – with integration of end-to-end aftersales, financial services and asset management.

The key success factor within Mobility as a Service will be a holistic end-to-end service portfolio that also covers, for example, infrastructure services, even though it currently involves low profitability standalone.

A comprehensive and holistic Mobility as a Service offering requires enablers such as autonomous driving, alternative drivetrains and connectivity – and these enablers must already be in place.

OEMs may also need to establish partnerships to become part of an integrated multi-modal mobility offering, particularly in metropolitan areas. Mobility services are highly scalable but must still be adapted to hyperlocal conditions, especially as the regulatory framework can vary considerably.

The emergence of CASA trends will facilitate Mobility as a Service in all revenue streams, making it a large revenue contributor to the OEM.

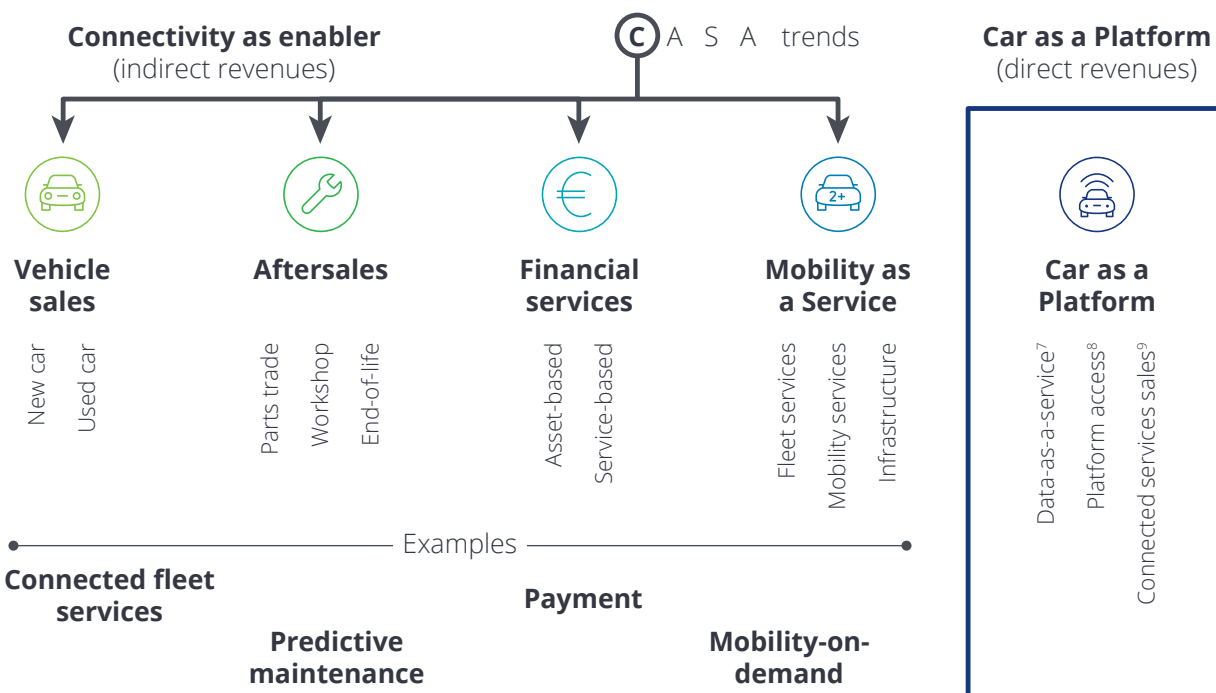


# Car as a Platform

## Summary

- Direct revenues are expected to increase from Car as a Platform sales, but the main role of connectivity is to act as an enabler for other revenue streams or as a cost optimizer
- Overall, Car as a Platform looks set to remain relatively small, accounting for only 2% of total OEM business, even when the OEM shapes the new mobility environment in the future
- The largest potential for additional revenues can be expected in vehicle data brokerage with different use cases
- OEMs should carefully review their initiatives and partnerships to avoid sunk cost investments

Fig. 45 – Differentiation of revenues



<sup>7</sup> Selling vehicle data or user data to third parties

<sup>8</sup> Selling user/in-car platform access to third parties

<sup>9</sup> Selling added-value services during car usage or in retail sales price

**Clarification of terminology**

When discussing the potential of connectivity, “connectivity as an enabler” is often confused with “Car as a Platform”.

“Connectivity as an enabler” has been discussed in previous chapters, e.g., in terms of facilitating predictive maintenance or as an enabler for fleet services, new mobility services or infrastructure offerings. It is difficult to quantify these indirect effects, as they are often interdependent with other enablers such as autonomous driving or e-mobility.

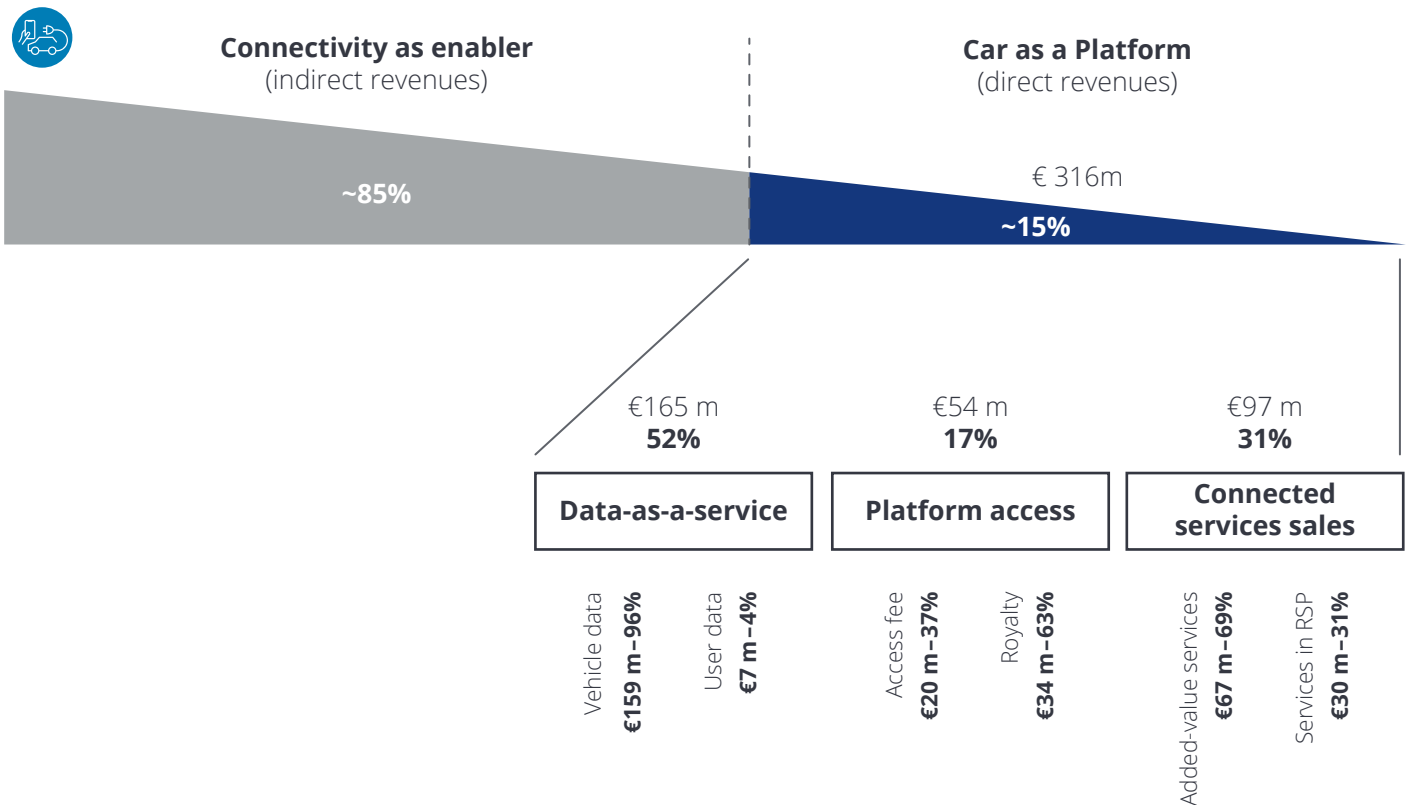
In this chapter, we focus on Car as a Platform in terms of direct revenues being from data-as-a-service, platform access or connected services sales.

**Scope of chapter**

Car as a Platform is mainly relevant for future state 1, in which the OEM shapes the mobility environment with its products and services:

- Where the emergence of CASA trends is weak, Car as a Platform will not be able to achieve a relevant market size.
- If the OEM does not control the user touchpoints, it will be unable to realize most of the revenues, because we can assume that third parties will provide Car as a Platform applications on their own.

**Fig. 46 – Total revenue potential of connectivity for the proxy OEM in 2035\* (schematic representation)**



Note: Numbers may not add up due to rounding  
 \*Definition overview of revenue sub-streams in appendix

### **Car as a Platform revenue streams on an upward trend from a low level in 2018.**

In 2018, Car as a Platform generated €15 m in direct revenues, roughly only 0.1% of total OEM revenues. At this point, sales consist mainly of connected services included in the retail sales price, such as navigation systems or voice assistance.

Overall, Car as a Platform will gain importance as customers shift away from a preference for minimal product variety to expressing very personal preferences. The trends towards product-as-a-service and digitization contribute to the increased use of connected services. At the same time, a new monetization logic is emerging: users are demanding pay-per-use offerings with multiple transactions.

### **In a future where the OEM shapes the new mobility environment, vehicle data-as-a-service is estimated to yield 52% of the total Car as a Platform revenues.**

The OEM can generate data-as-a-service revenues mainly from vehicle data, which can be sold for a variety of applications, including usage-based insurance, vehicle status information or location tracking. Vehicles with V2X connectivity can significantly bolster the OEM's ability to monetize data and implement use cases.

In this future state, we assume that car makers have access to user data generated throughout the mobility journey. However, user data is expected to be less valuable than vehicle data, as e-commerce platforms or tech companies collect more and deeper information than OEMs.

### **There are widespread and diverse potential use cases for vehicle data.**

We identified various areas of application classified along four customer groups: insurance, automotive, public and customers from other sectors. For each field, we will introduce representative use cases. This does not cover all existing use cases and new use cases may emerge in the future.

#### **What OEMs should consider when entering the vehicle data-as-a-service business:**

##### **1. Define business strategy**

OEMs need to clearly define their long-term data-as-a-service strategy including relevant use cases, long before data is collected or even sold. Anonymization and consent management needs to be implemented in a way which plays into the hands of future monetization opportunities as data value needs to be maintained for desired future applications.

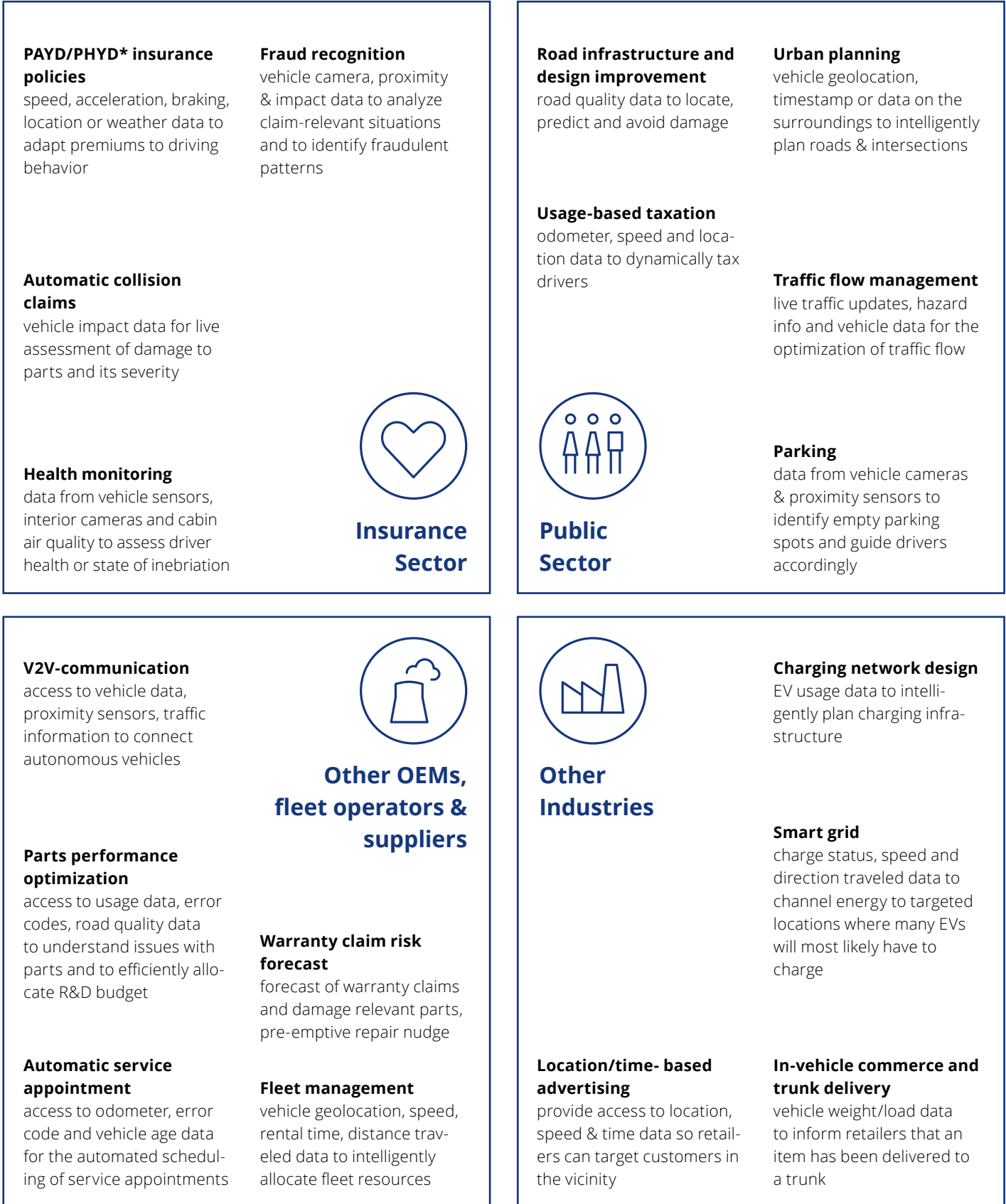
##### **2. Build proprietary central data brokerage platform**

The key to successful automotive data brokering is a central platform that ensures standardized end-to-end processes with centralized functions. In terms of functionality, the platform must be able to consolidate, anonymize and distribute data.

##### **3. Consider legal constraints**

OEMs must ensure that its data processing systems comply with local legislation, which can vary significantly among markets and is not to be underestimated. Ideally, OEMs would create a consent management process for each dataset, in which customers agree to share their data. Otherwise, the data must be anonymized, but in such a way that does not diminish the value of the data.

Fig. 47 – Examples of data-as-a-service use cases (list not exhaustive)



\* Pay as you drive; Pay how you drive

**Connected services sales are expected to grow as individual services gain importance and ADAS level 5 gives customers more free time.**

The OEM might be able to sell bundles with highly-customized connected services to private customers as a premium offering. Revenues are generated either at the moment of car purchase through option packages provided during vehicle configuration or through an ongoing subscription-model during car usage. ADAS level 5 drives sales of connected services since users have more free time available to spend productively and/or on infotainment.

**Platform access revenues represent third-largest revenue source.**

The OEM will also allow outside service providers to reach car users through its mobile application and in-car content platform.

In addition to infotainment applications, the OEM sells advertising space/time, creating a highly scalable revenue sub-stream that yields the highest contribution margin across all business segments.

**In conclusion, we believe that connectivity will be a key enabler in the future, but direct revenues from Car as a Platform may in fact be lower than expected.**

Measures to improve vehicle connectivity and associated operating models must be of the highest priority. However, as the competitive landscape and the nature of connected services R&D and operations is relatively new to all OEMs, finding a way to do so profitably will pose a significant challenge.

Vehicle data brokerage is the part of the business where OEMs have an opportunity to monetize their potentially exclusive access to the vehicle data. Played right, this could give the OEMs the negotiating power they need to find the right partners and solidify their position among cross-industry competitors.

**OEMs should design their Car as a Platform strategy wisely and select partners carefully.**

When it comes to designing and implementing these services, OEMs have to select their strategy carefully. Collaborating with the right partners will be key. OEMs need to explore a cooperative model rather than traditional sourcing to address the challenges of this new, much faster business. Forming the right partnerships is also vital for the speed and the scale the business demands. Late adopters will find it even harder to turn a profit. In terms of internal operations, OEMs will have to dismantle functional silos.

With regard to Car as a Platform, OEMs need to explore a cooperative model rather than traditional sourcing.

# Priority actions for OEMs

In a last step, we highlight concrete actions OEMs need to prioritize in order to succeed in the lead-up to 2035 – the priorities we have identified rank high in both urgency and importance and should apply to most OEMs.

In collaboration with our clients, we have validated a set of measures that will enable us to identify courses of action that are not only relevant but also extremely urgent.

Though we acknowledge that each OEM has both a different starting point and a different vision, we define a set of representative priority actions that should be valid for most OEMs.

## **Build direct sales and aftersales network**

OEMs have to significantly transform their stationary sales and aftersales network regardless of the future state. In addition to reducing the scale and introducing new formats to the mix, they must ensure that the entire network is omnichannel capable and able to satisfy all of the customer preferences that vary between future states.

OEMs do not need to set up everything from scratch. They could use existing infrastructure and partner with large retail groups (either independent or own retail) that have the necessary capabilities and are willing to transform. Together with these partners, OEMs might be able to make up leeway.

## **Operate from a fleet perspective**

In all future states, fleet customers are increasingly requesting the products and services of a full-service fleet, comprising asset management, financial services, fleet services and aftersales services.

Instead of looking exclusively at product development costs, now more than ever OEMs need to consider total costs across the lifecycle of the vehicle. Optimizing total cost of ownership (TCO) is not only a factor in competing for fleet customers but it can also become a key factor in making fleet operation more competitive in the new mobility environment.

## **Invest in connectivity across all business segments**

OEMs must ensure vehicle connectivity to participate in various future use cases and to offer the level of service that future customers and mobility users expect. We would recommend most OEMs to enter into large-scale and long-term partnerships extending from research and development to final implementation to avoid having to cover high one-off investments by themselves.

## **Put the user at the center**

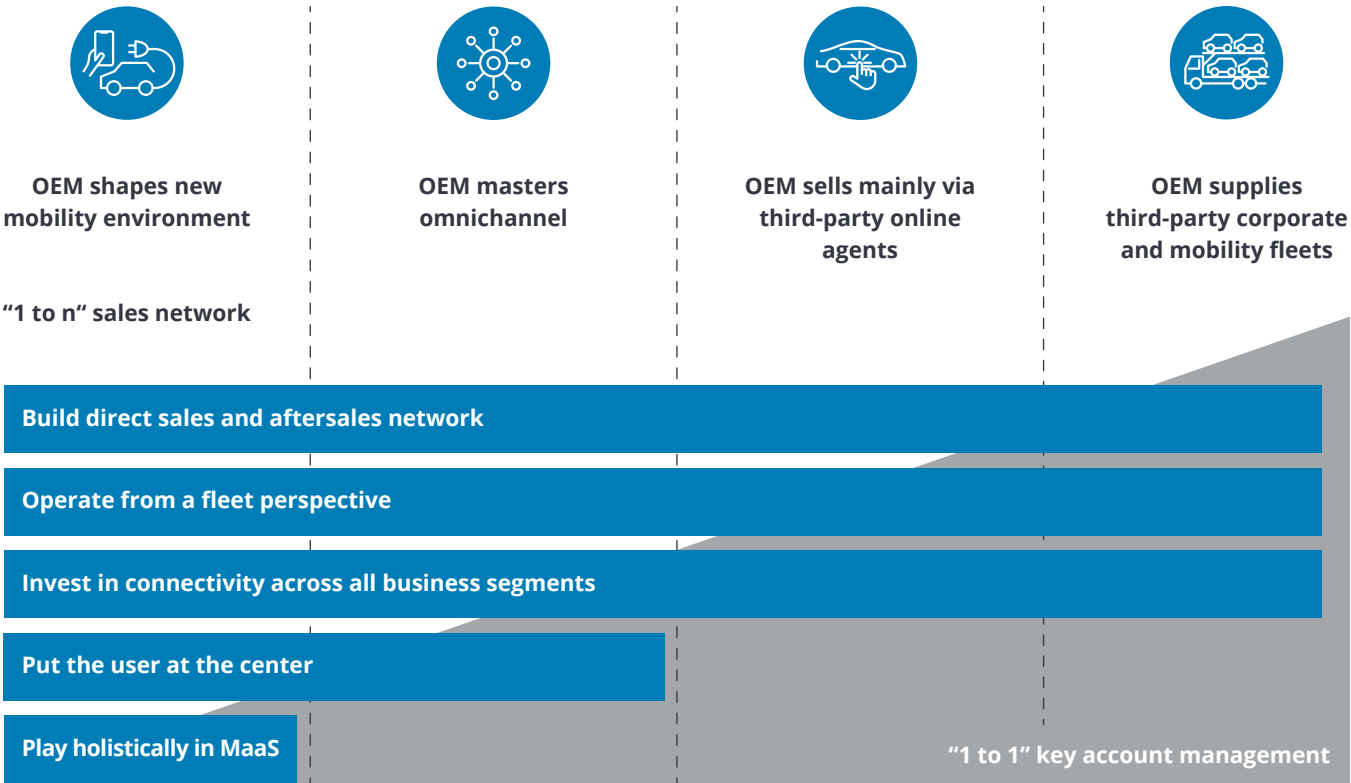
If OEMs want to control the user touchpoints to dominate the business, OEMs have to align their overall offering from a user perspective. More specifically, they should begin by centralizing their data pools with full customer accounts and invest in digital user touchpoints along the entire mobility journey.

## **Play holistically in Mobility as a Service**

In terms of profitability and the overall viability of business models in Mobility as a Service, OEMs need large economies of scale to survive in that business segment. We expect to see a strong trend towards consolidation despite the fact that service offerings must be adapted to hyperlocal conditions. Mobility as a Service represents an area of activity that will succeed especially if it has an integrated platform from a user perspective and offers extensive cross-selling opportunities.



Fig. 48 – Representative priority actions



# Conclusion

In this study, we have shown that there are challenging times ahead for OEM sales and aftersales. Without significant transformation, an OEM will hardly be able to remain profitable in 2035.

To overcome the foreseeable challenges, regardless of future state, we recommend OEMs the following:

- Realign all business divisions within an overall future-proof corporate strategy. Speed and impact of change does not tolerate individual "silo-optimized" strategies

- Radically transform the traditional business segments vehicle sales and aftersales, particularly in terms of stationary network structures and formats. Incremental optimization of the status quo is not sufficient, not even in the mid-term

- Resolute investments are needed within new business segments, taking into consideration long-term and holistic business objectives rather than short-term business cases

But even if OEMs do all of the above, it will be very hard to compensate losses in traditional business with expected growth in new business segments – at least until 2035.

We encourage to take our analysis of this proxy OEM and carefully adapt it to the specificities of your own businesses. This will enable you to assess all available strategic options and to review current investment and initiatives in how far they contribute to the chosen strategic direction.

Thank you for reading our study. Presenting all results of our analysis would go beyond the scope of this publication. We would be delighted to further elaborate on specific study details and discuss OEM-specific implications.

# Appendix

Fig. 49 – Revenue sub-streams definitions

Traditional business	Business segment	Revenue stream	Revenue sub-stream
	<b>Revenue stream</b>	<b>New car</b>	Private
			Corporate and mobility fleets
		<b>Used car</b>	OEM cars
			Short cycle fleet
			Long cycle fleet
			Trade-in cars
	<b>Aftersales</b>	<b>Workshop</b>	Maintenance & services
			Wear & tear
			Repair
		<b>Parts trade</b>	Accident
			Upgrade & accessories
			IAM penetration
	<b>End-of-life</b>	OTC parts sales	
		Reuse	
		Recycling	
	<b>Financial services</b>	<b>Asset-based</b>	Credit
			Leasing
		<b>Service-based</b>	Wholesale
			Insurance
	<b>Mobility as a Service</b>	<b>Fleet services</b>	Payment
Own brand			
<b>Mobility services</b>		Multi-brand	
		Vehicle-on-demand	
<b>Infrastructure</b>		Mobility-on-demand	
		Parking	
<b>Car as a Platform</b>	<b>Platform access</b>	Charging	
		Access fee	
	<b>Data-as-a-service</b>	Royalty	
		Vehicle data	
	<b>Connected services sales</b>	User data	
Added-value services			
<b>New business</b>		Services in RSP	

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**Definition**

Passenger cars as defined by IHS sold to private customers

Passenger cars as defined by IHS sold to corporate & mobility fleets with or without full-service leasing

OEM self registrations (to employees) plus demo cars

Used cars (less than 3 years old) from fleet customers

Used cars (more than 3 years old) from fleet customers

Used cars from private customers

Regularly recurring revenues including, for example, inspections

Recovery of abrasion arising from vehicle usage

Services to fix unanticipated vehicle breakdowns

All services attributable to accident recovery

Additional features and equipment added to vehicle after purchase

Direct parts sales to wholesale / distributors, workshop chains

Over-the-counter parts sales to workshops and the end user

Sale of end-of-life components for new use cases in other industries (e.g., used batteries)

Revenues from recycled resources sold

Credit finance to enable vehicle sales to private, corporate and governmental customers.

Financial and operating leasing to enable vehicle sales to private, corporate, and governmental customers including (full-service leasing) fleet management contracts

Support of dealer network by financing floorplan of dealer and real estate for required facilities

Bundling of existing offerings (such as full service leasing contracts) with additional insurance contracts

In-house transaction platforms allowing for revenues from transaction fees (micro-payments arising from Mobility as a Service or Car as a Platform)

Revenues that come from fleet services contracts for own car brand

Revenues that come from fleet services contracts for multi-brands

Shared mobility services without driver provision

Shared mobility services where passenger is driven (by driver or by level 5 autonomous driving technology)

Entails provision of parking services and infrastructure (on-street and off-street) as an agent or operator

Entails provision of charging services and infrastructure as an agent or operator

Access fee to receive platform access/placement

Commission fee generated from sales through platform

Revenues from selling vehicle data as a broker

Revenues from selling user data as a broker

Ongoing service sales during car usage (e.g. through subscription)

Services which are included in the retail sales price and sold at the time of car purchase

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