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EU Market Update & Mobility Outlook
ECG Conference Brussels
20-10-2017

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and confidential*

October 2017

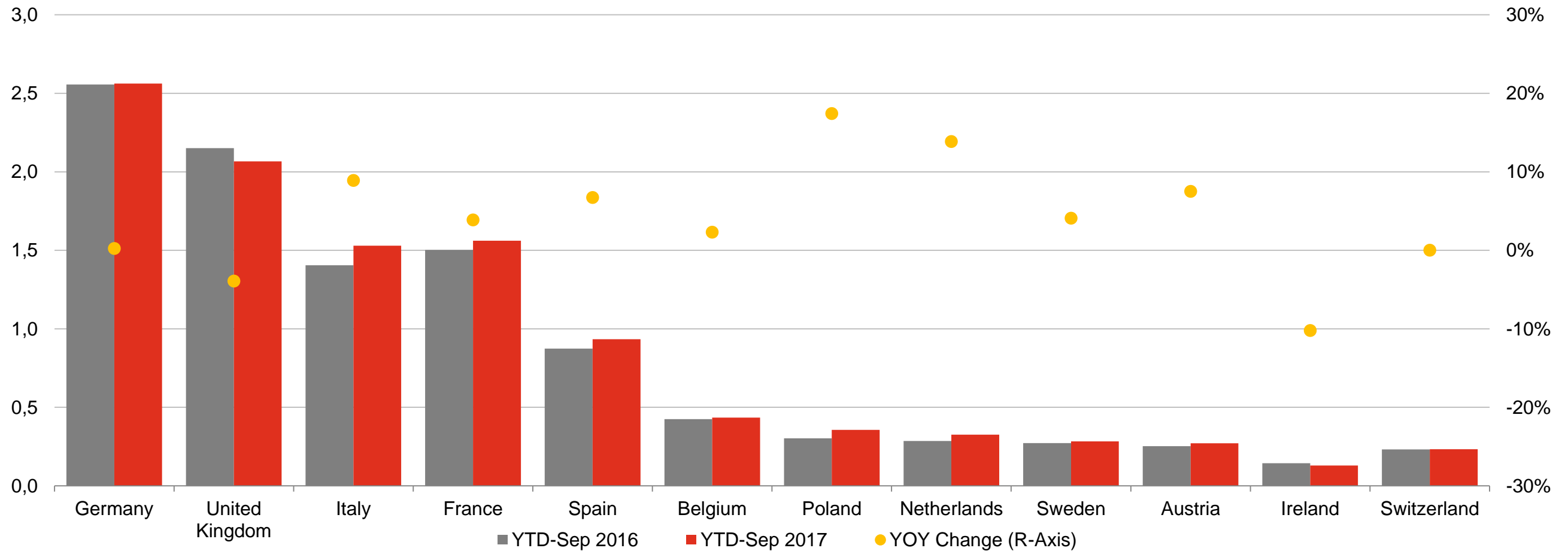
pwc

Growth of new car registrations is beginning to slack off in Q3 – worse to be expected in Q4

After a strong start in the first quarter, registrations started to mellow in Q2. Incoming results of Q3 suggest that growth stalled over the three months, due to almost 9% decline in the UK and Ireland, and top-line weakness in the German market which is shaken severely by doubts about the viability of Diesel cars. Nevertheless, Italy, France and Spain continued on their recovery path, topped only by Poland and the Netherlands.

EU+EFTA: New Car Registrations by Top 12 Markets

YTD-Sep 2016 vs YTD-Sep 2017 (millions)



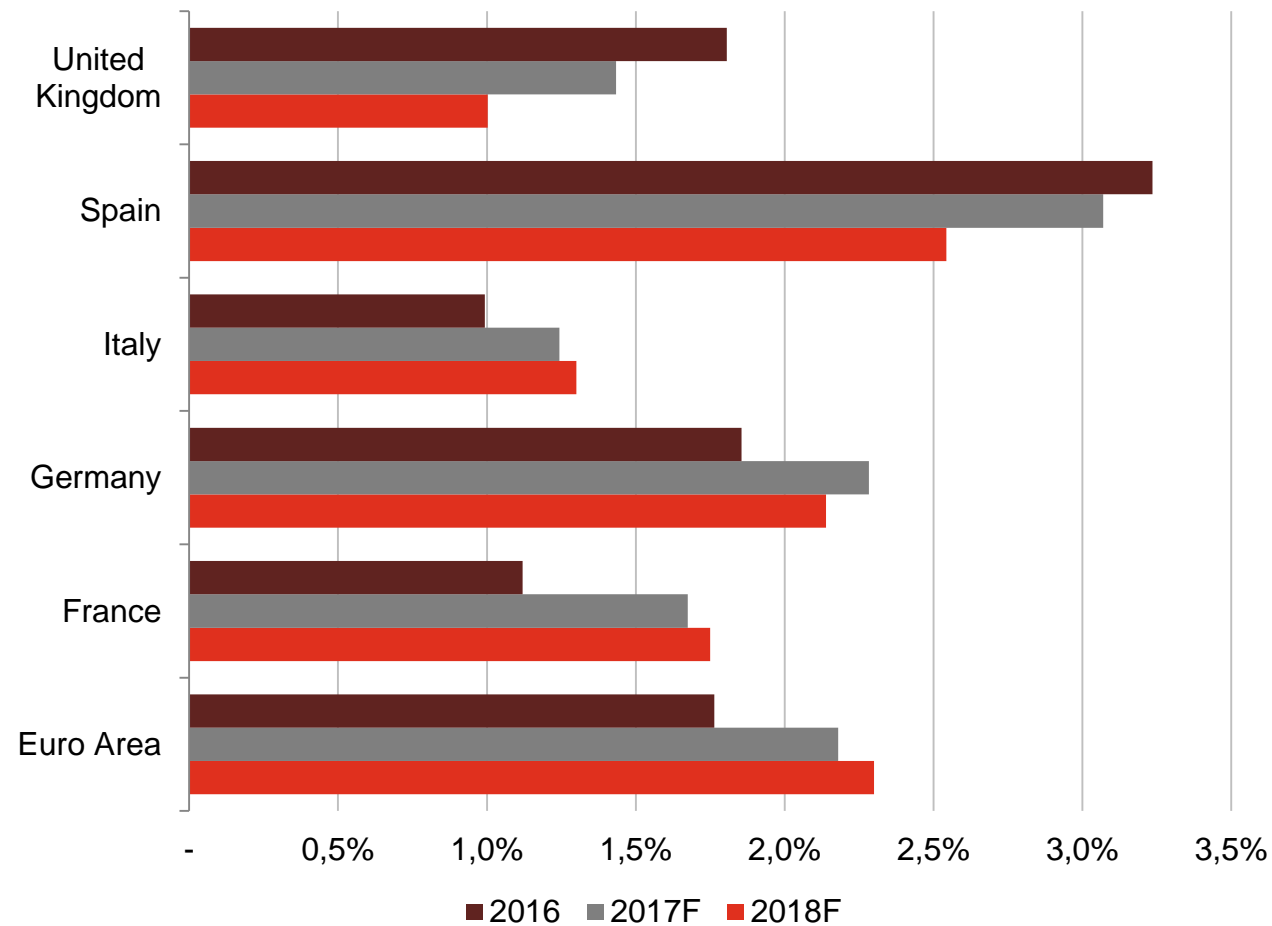
Source: ACEA, Autofacts Analysis

Economic sentiment is approaching a historical high while growth may soften

GDP growth forecasts are forecasted to slow down in 2018, especially UK, Spain and Germany. In the UK, net investment activity has plunged by more than 30% in 2017, leaving its show an overall acceleration in the Euro Zone, while several main countries mark on the current year as well as short-and mid-term growth prospects. Italy and France, however, are expected to accelerate further, in line with high economic sentiment.

EA & Top 5: Real GDP Annual Growth

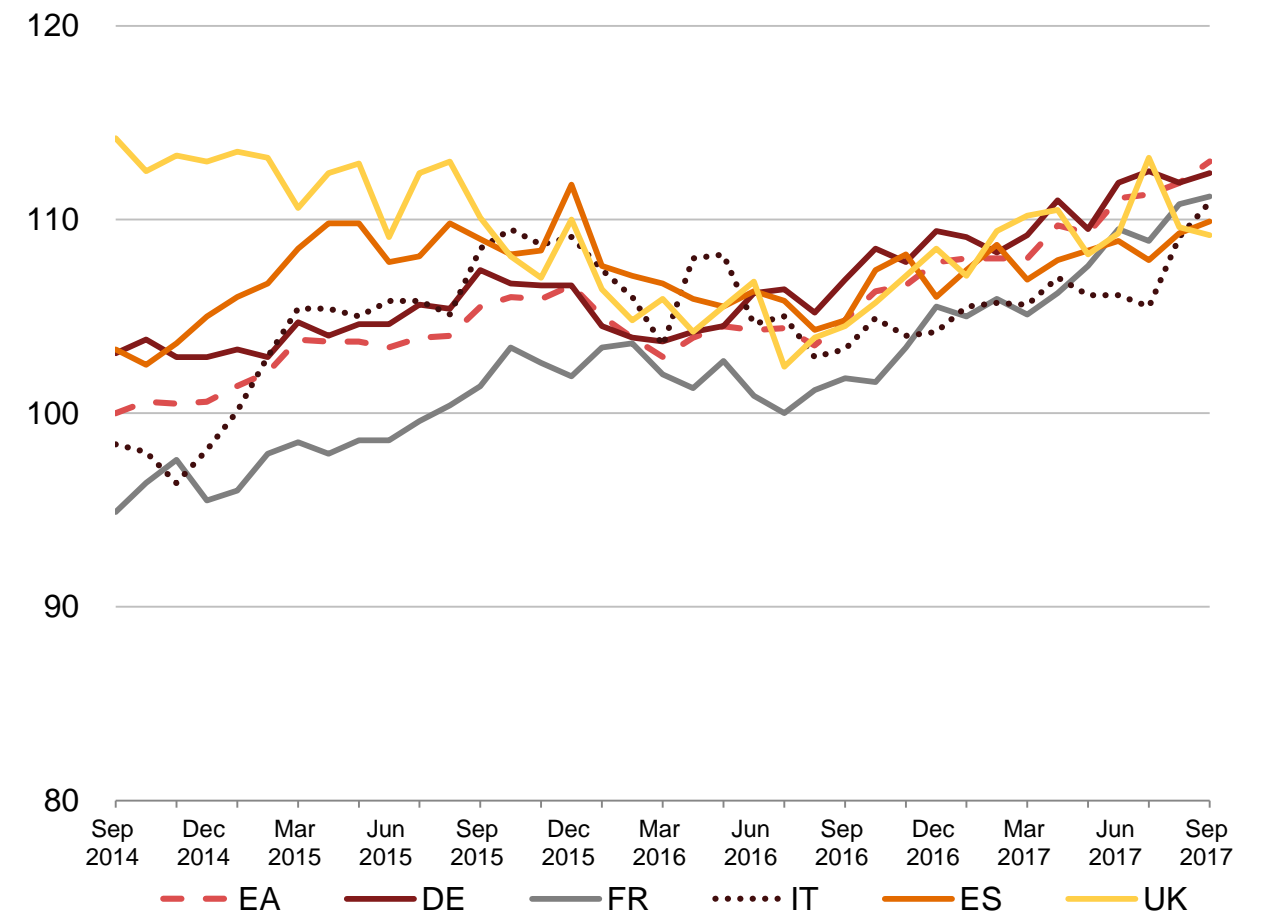
2016 – 2018F (percentage change)



Source: IHS Markit, European Commission (October 2017)

EA & Top 5: Economic Sentiment Indicator

Sep 2014 – Sep 2017 (101 = long run average)

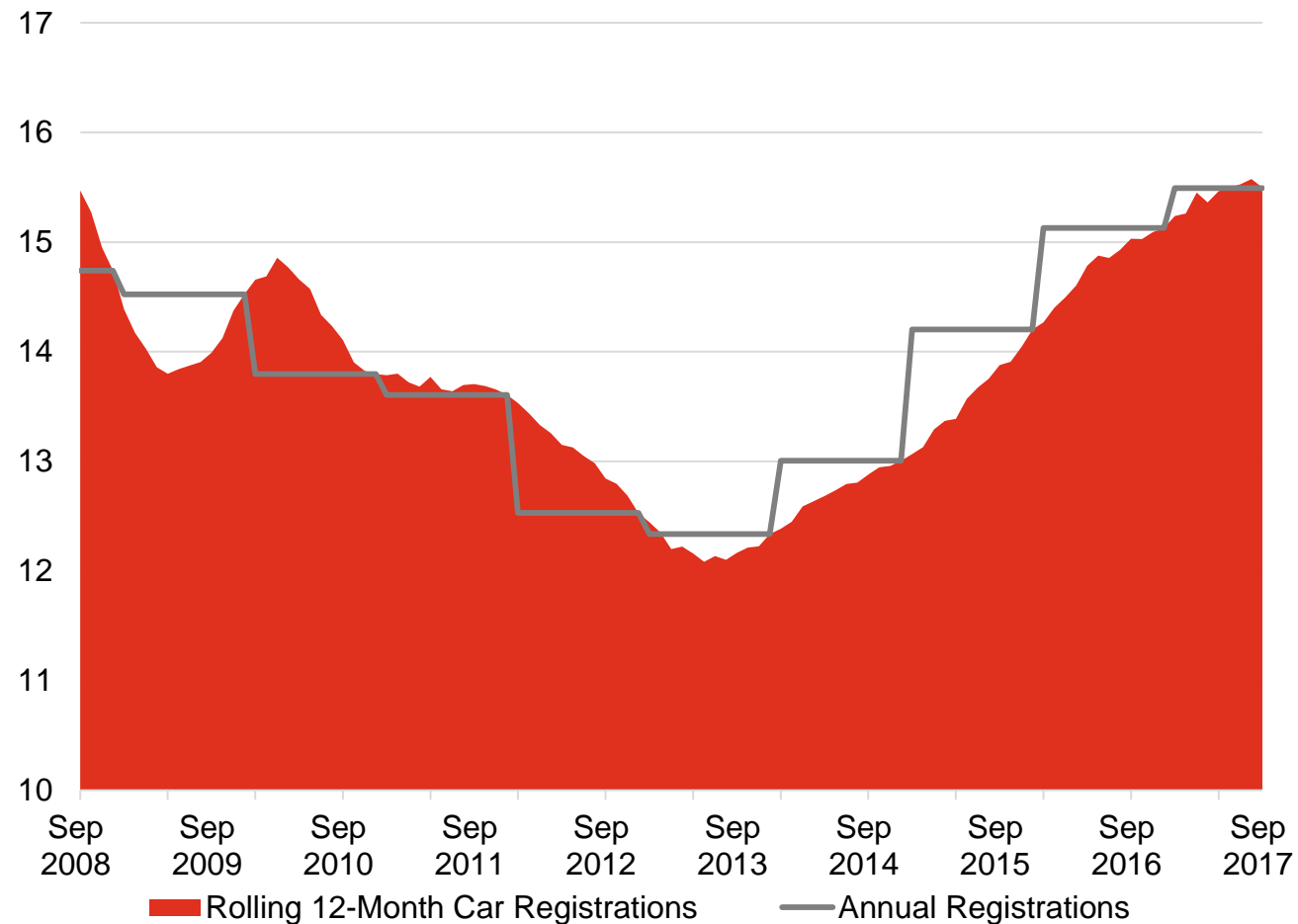


Europe's new passenger car market shows an increasing slow-down since Q2 2017

On a rolling 12-month average base, it seems that the European market has hit its cyclical high in summer 2017, and is moving towards a reversal of dynamics as the year continues. This seems contradictory to recently-updated macroeconomic growth statistics and expectations, but is explicable through increasing insecurity about regulatory changes with ensuing impacts on residual value expectations and – therefore – cost of financing.

EU+EFTA: Rolling 12 Months Car Registrations

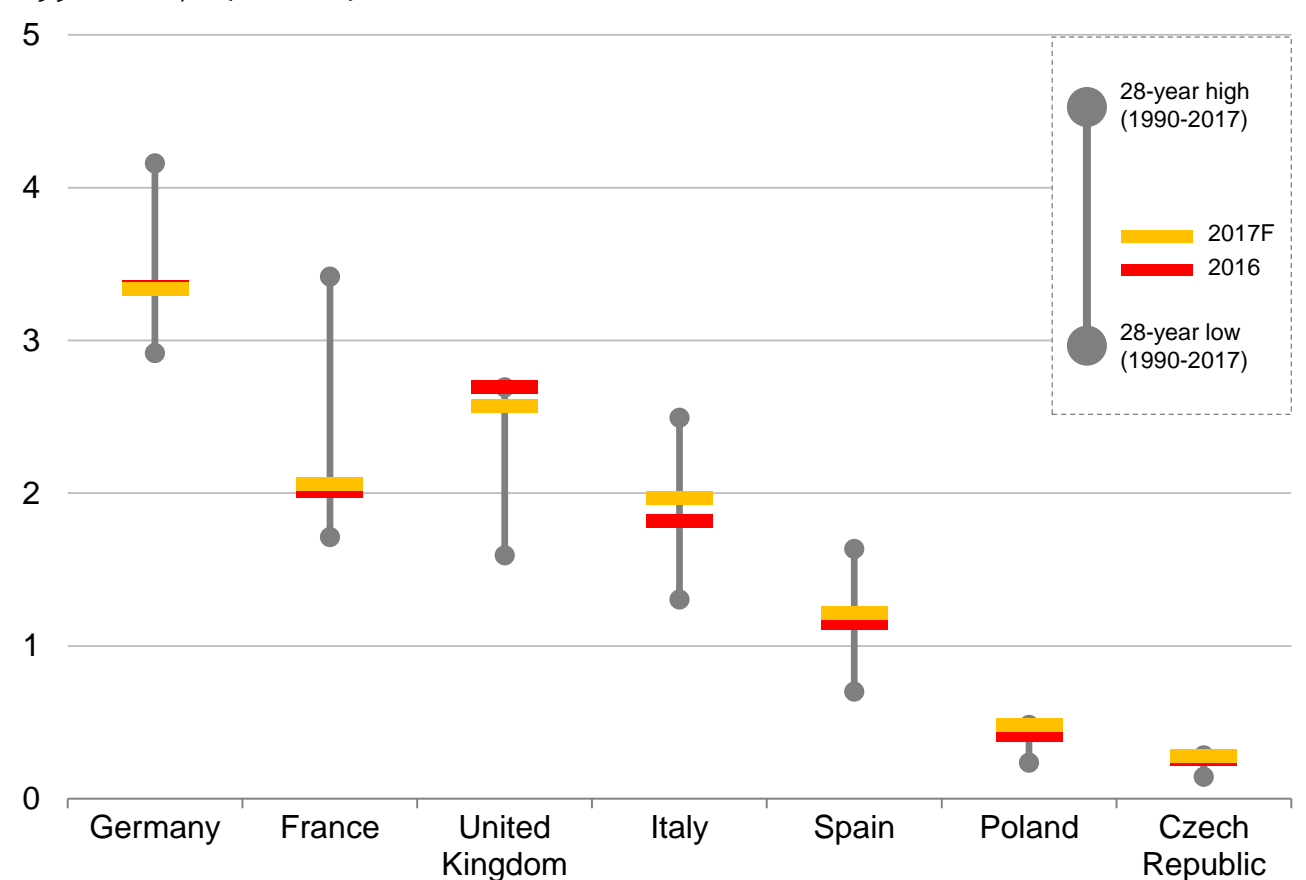
Sep 2008 – Sep 2017 (millions)



Source: ACEA, Autofacts Analysis

EU+EFTA: New Car Registration Variance

1990 – 2017F (millions)

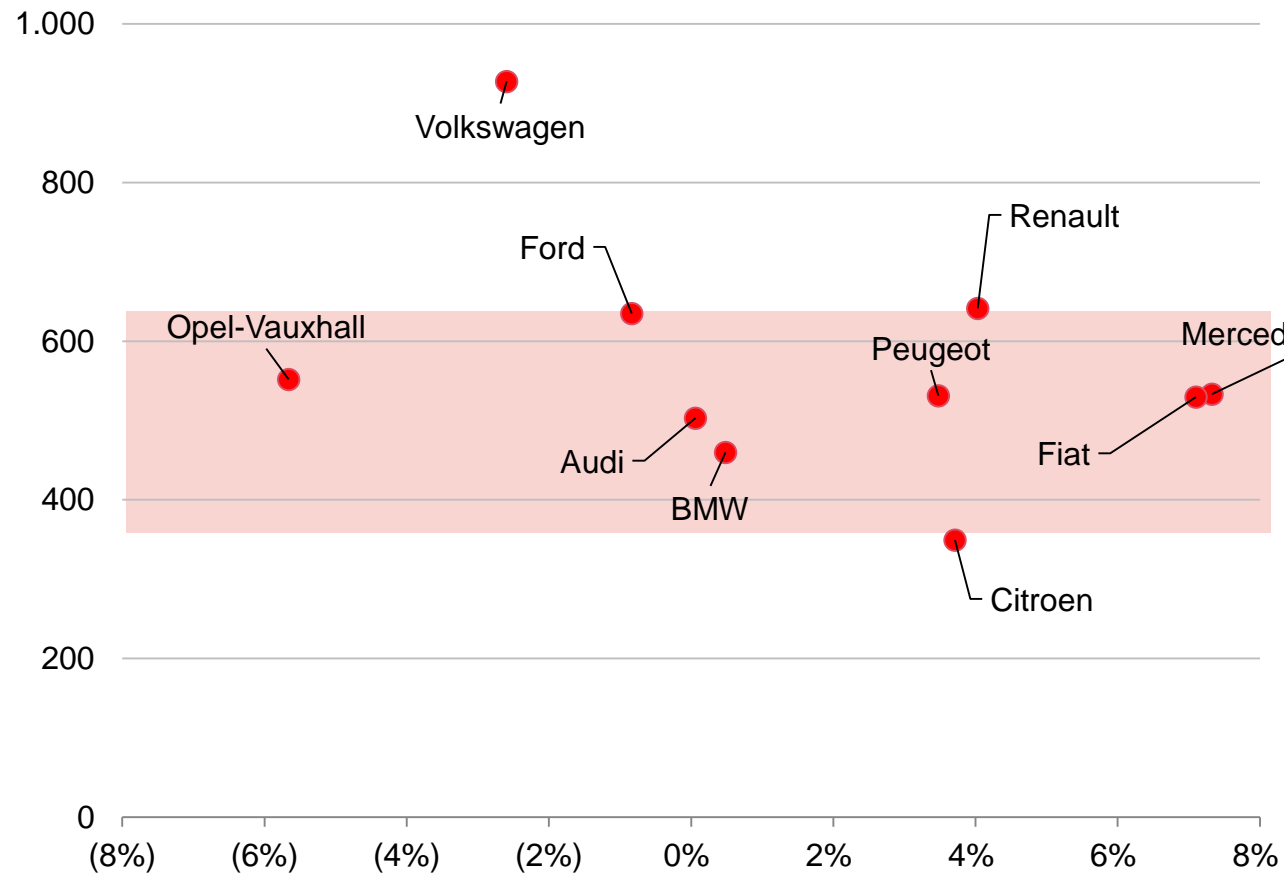


Strong growth can appear due to totally different reasons

The Fiat and Mercedes-Benz brands both achieved sales of approximately 500k units year-to-date, and managed to grow at over 7% - only Fiat did so without any new product launch, while Mercedes' home market of Germany showed increasing weakness. Fiat, however, was bolstered by increasing demand in its core markets Italy, France and Spain, while Mercedes continued to churn out new and upgraded products against weaker competition.

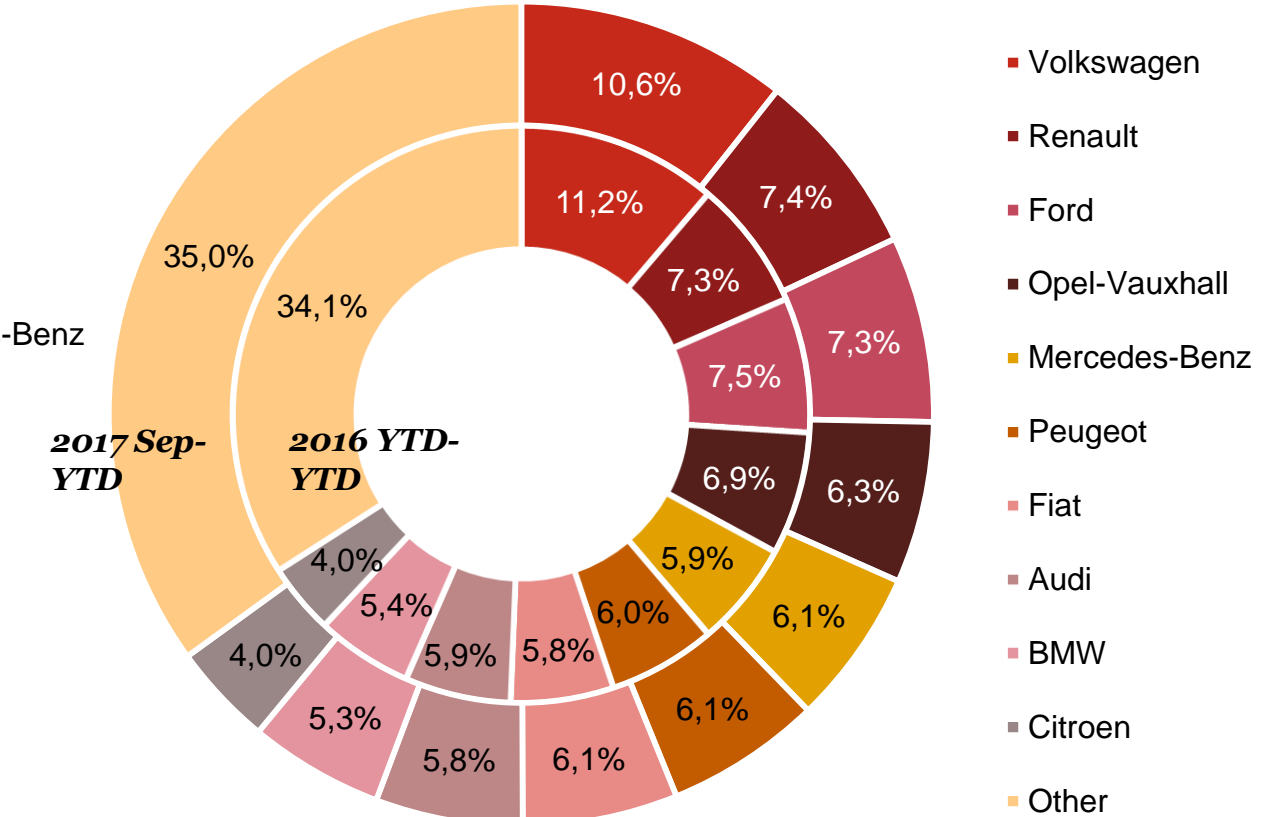
EU Top 5 Markets: Brands Sales Volume and Growth Rate*

YTD Sep 2016 vs. YTD Sep 2017 (thousands)



EU Top 5 Markets: Market Share*

YTD Sep 2016 vs. YTD Sep 2017 (percentage share)



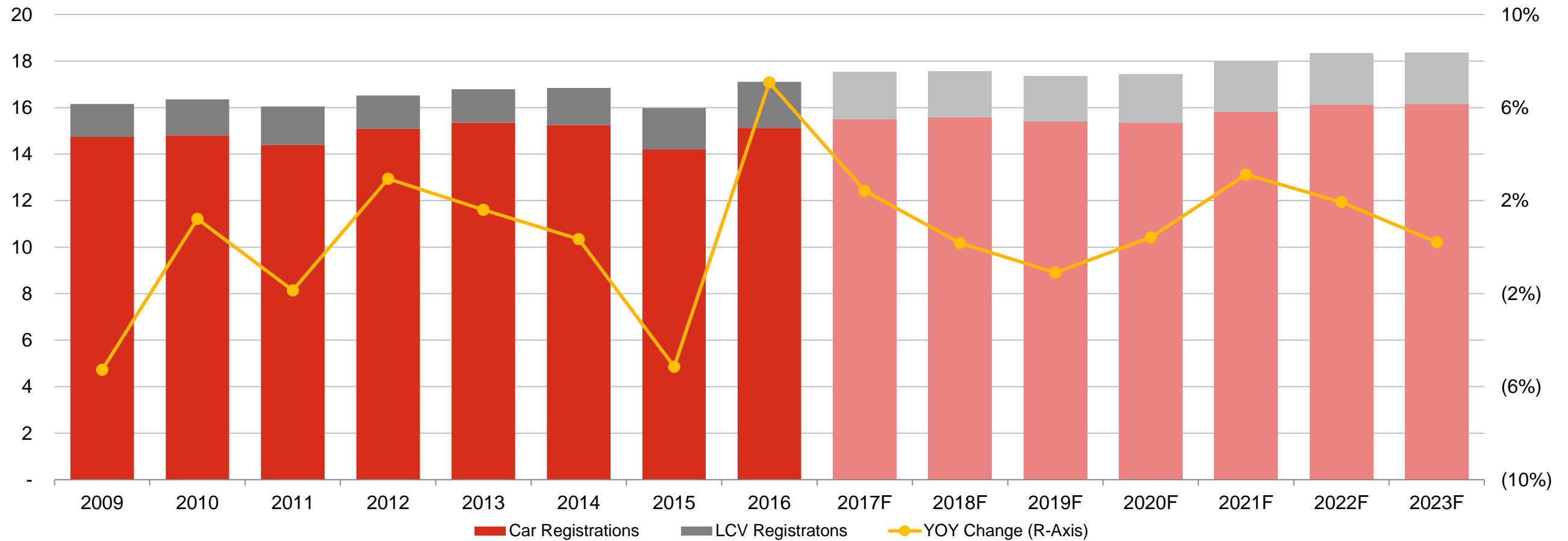
Source: ACEA, Autofacts Analysis *Only brands with official sales data included, commercial vehicles not included

Due to incoming actuals, Autofacts has adjusted to full-year forecast for EU to just 2.4% growth

The cyclical slowdown is now expected to continue into 2019 due to adjustments of the fuel and powertrain mix and technical compliance increasing vehicle prices. With weakening residual values, financing costs for new vehicles will increase even in the absence of a central bank rate hike, pushing some incremental demand back into the used-car market. The development in the United Kingdom remains a wild-card requiring close monitoring and quick reactions.

EU+EFTA: New Light Vehicle Registrations

2009 – 2023F (millions)



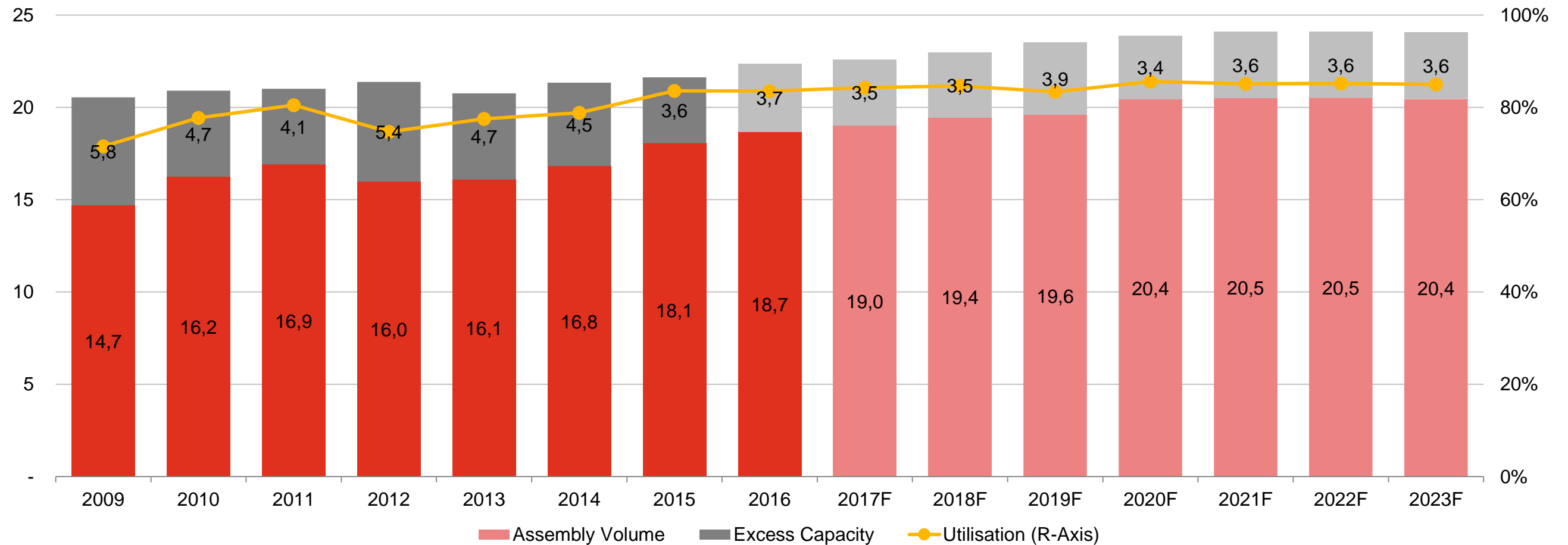
Source: ACEA, Autofacts Analysis

New products and continuous investments in plants are expected to keep utilization above 80%

The European light vehicle assembly is expected to remain strong as domestic and non-domestic OEMs launch new products and invest in plant upgrades and expansions, which could push volumes to over 20m units by 2020. In 2016, European light vehicle assembly grew by 3.4% to 18.7m units and is assumed to grow more than 250k units to 19.0m units in 2017, keeping overall plant utilization at a sustainable level of more than 80% in 2017 and for the foreseeable future.

EU: Light Vehicle Assembly

2009 – 2023F (millions)



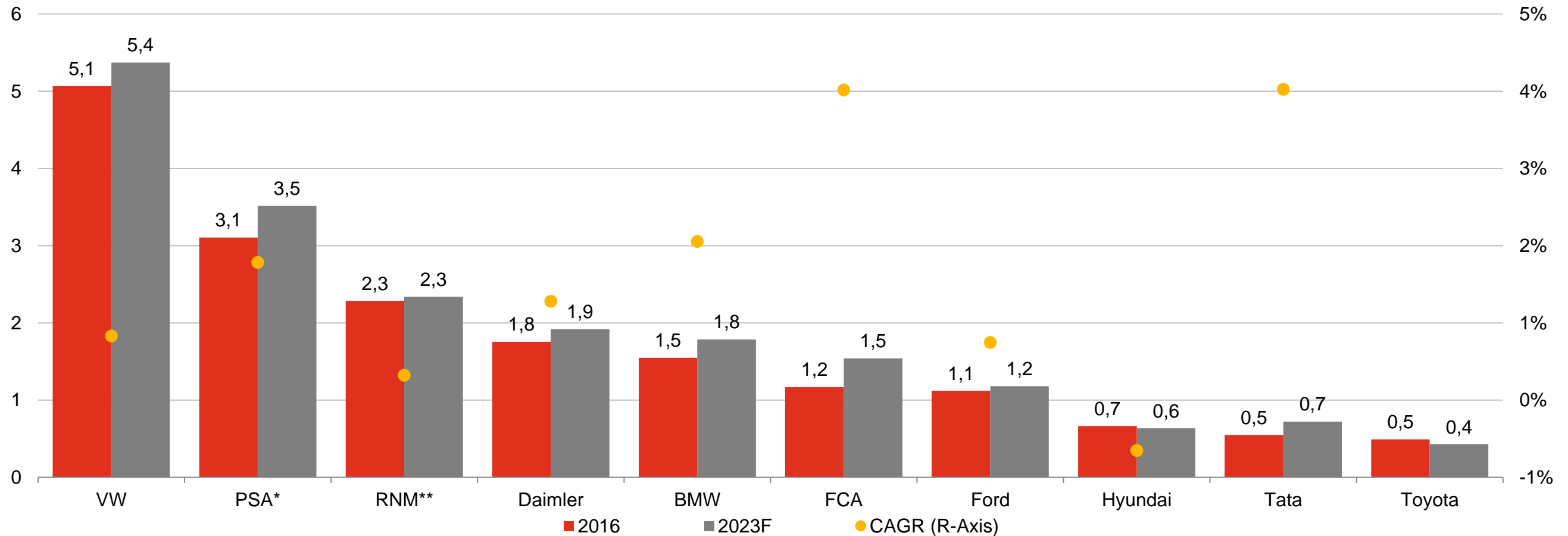
Source: Autofacts 2017 Q4 Forecast Release

The enlarged PSA Group still has a long way to realize possible synergies

With expected 3.1 million units production in 2017 and strong growth outlook due to the expansion of the SUV/ Crossover product portfolio, the PSA group is one of the most active market movers in Europe. Still, as product portfolio and operations are not yet aligned, the economics of the take-over remain challenging. Both Daimler and BMW are expected to increase their product portfolio and output over the next 5 years, while overseas manufacturers seem locked into their current European footprint.

EU: Top 10 Alliance Groups

2016 vs 2023F (millions)



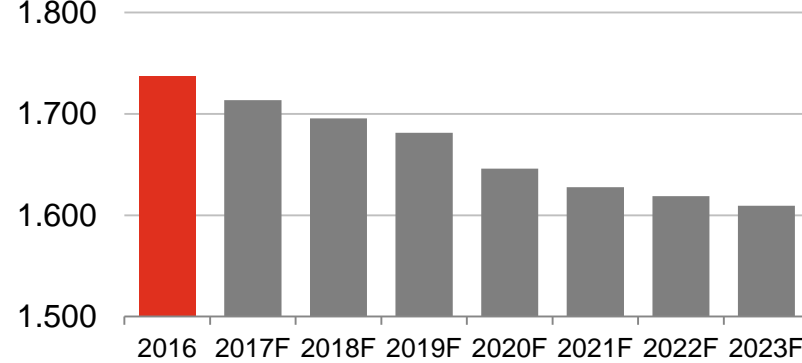
Source: Autofacts 2017 Q4 Forecast Release *PSA incl. GM Europe (Opel-Vauxhall) **Renault-Nissan-Mitsubishi

The mix of powertrains installed in the EU is going to align further to global standards

In order to meet emission requirements, downsizing and electrified vehicles are expected to gain market share in the near future. Since performance is still a valid consumer need, Autofacts expects manufacturers and technology partners to focus further on turbocharged engines. Further, by 2023 almost 20% of all vehicles, compared to 3.2% in 2016, are forecasted to have an electrified powertrain – increasing growth of the hybrid figure depends on further decline of Diesel engines.

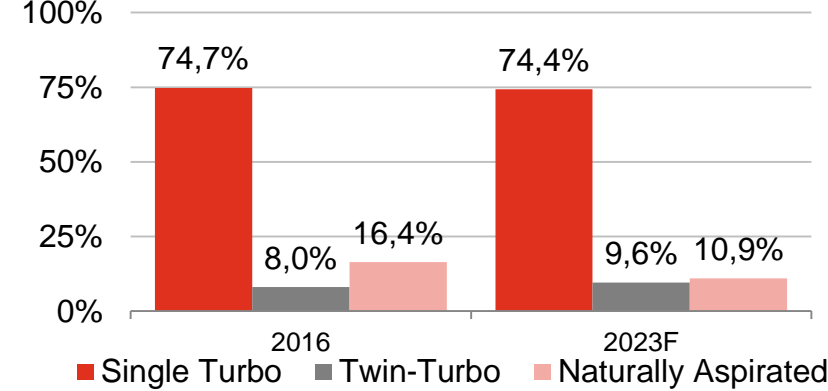
Average Engine Displacement

2016 – 2023F (cubic centimeters)



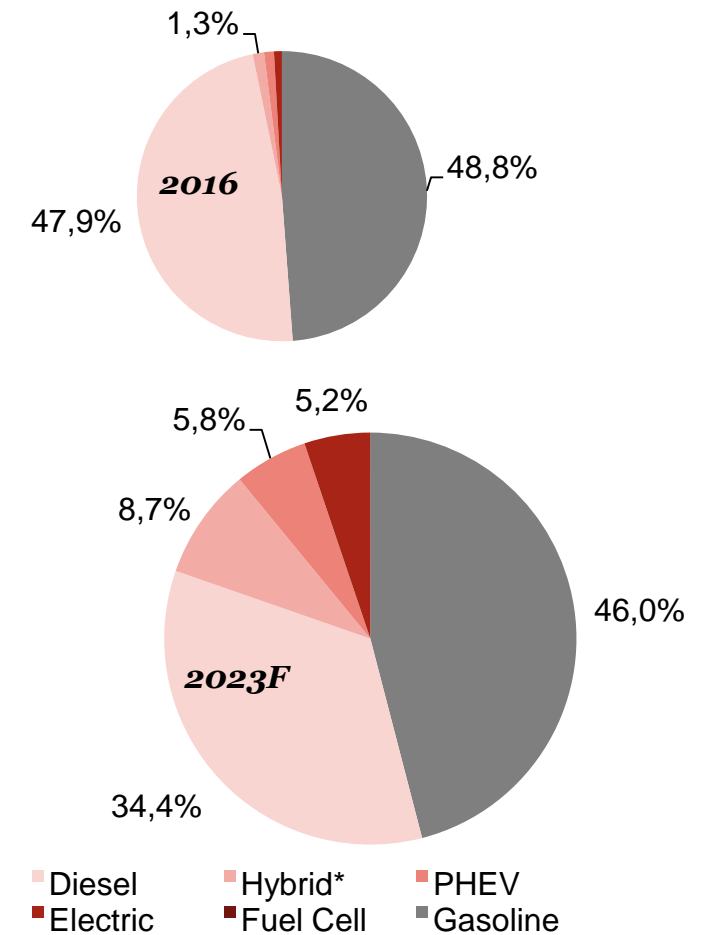
Technology Outlook

2016 vs 2023F (percentage share)



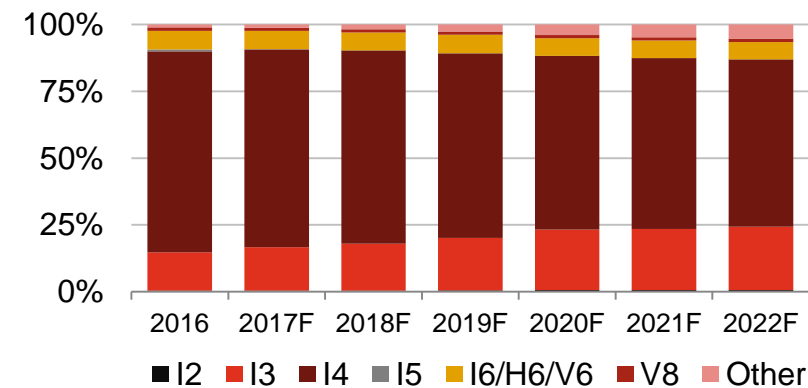
Vehicle Propulsion

2016 vs 2023F (percentage share)



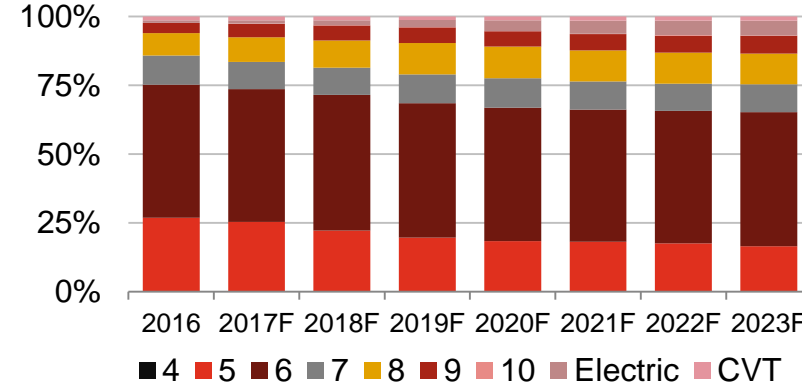
Engine Share by Cylinder Number

2016 – 2023F (percentage share)



Trans. Share by Gear Count

2016 – 2023F (percentage share)



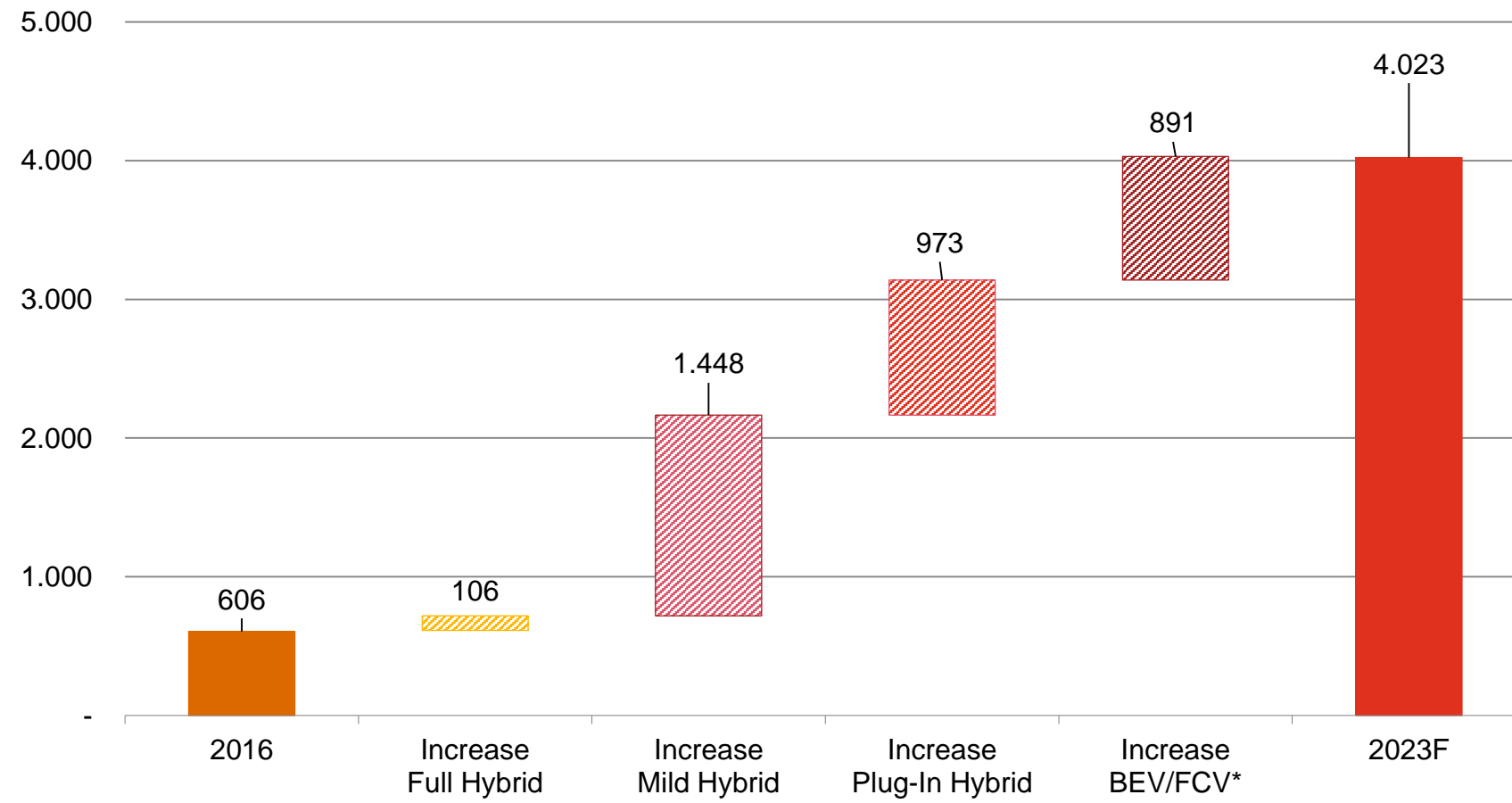
Source: Autofacts 2017 Q4 Forecast Release *Includes mild & full hybrids

Alternative drivetrains will become the most important growth area in upcoming years

The installation of alternative drivetrains in light vehicles that are manufactured in the EU is forecasted to grow substantially in numbers by more than 510% or 3.4m units, summing up to more than 4.0m units by 2023. Fully electric and hybrid powertrains are regarded as necessary to achieve the European CO₂ emission targets by lowering fuel consumption – especially as declining Diesel sales make the challenge even more daunting. Regulations beyond 2021 are still under discussion.

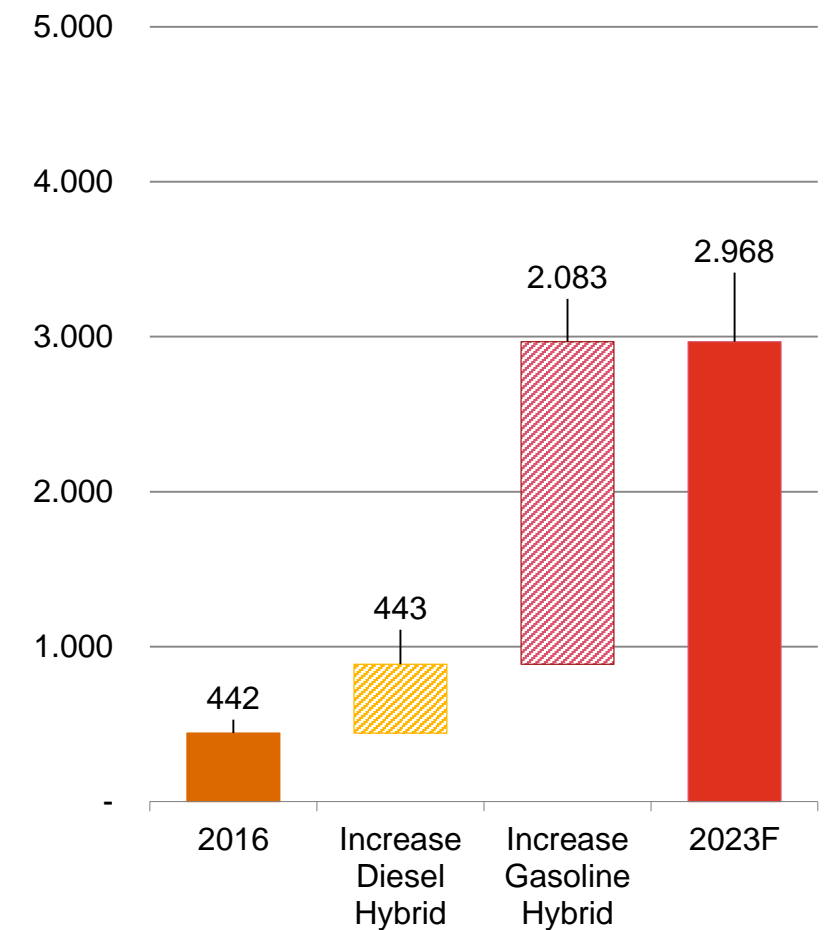
EU Powertrain: Alternative Engine Type Distribution

2016 vs. 2023F (thousands)



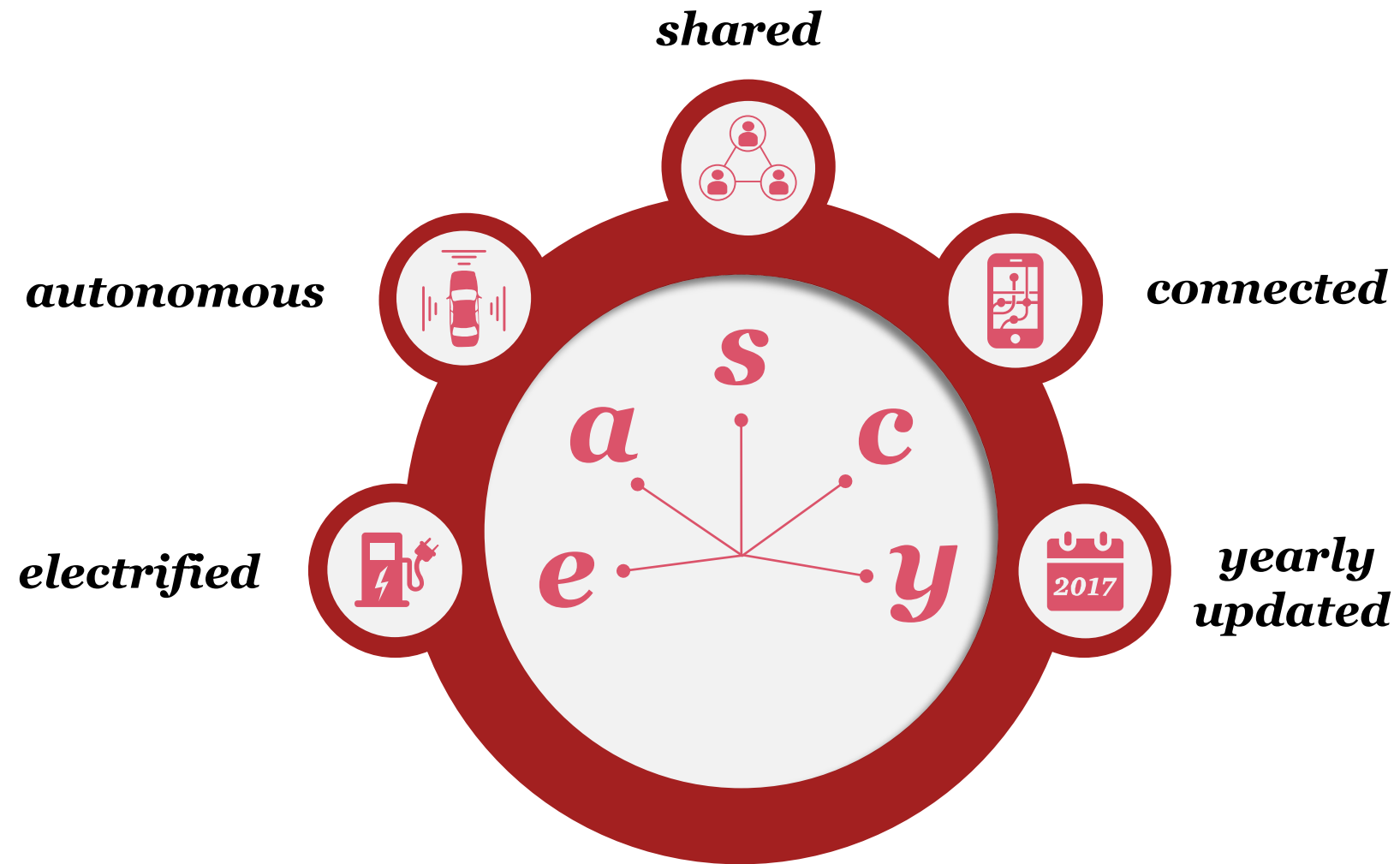
EU Powertrain: Hybrid Distribution**

2016 vs. 2023F (thousands)



Source: Autofacts 2017 Q4 Forecast Release *BEV = Battery Electric Vehicle, FCV = Fuel Cell Vehicle **excl. BEV/FCV

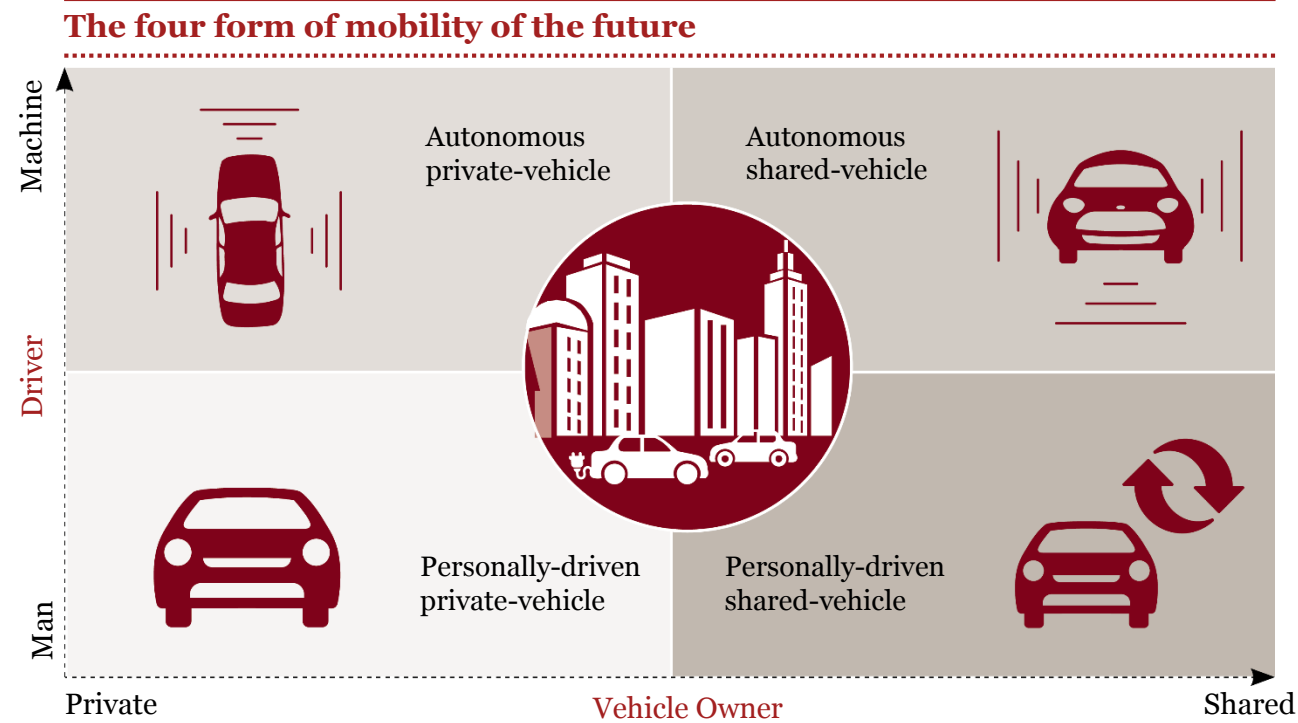
“It’s gonna be so easy”



The user will be able to choose from a menu of mobility forms grouped between the coordinates vehicle driver vs. vehicle owner

The **primary use-case** is car sharing in urban areas.

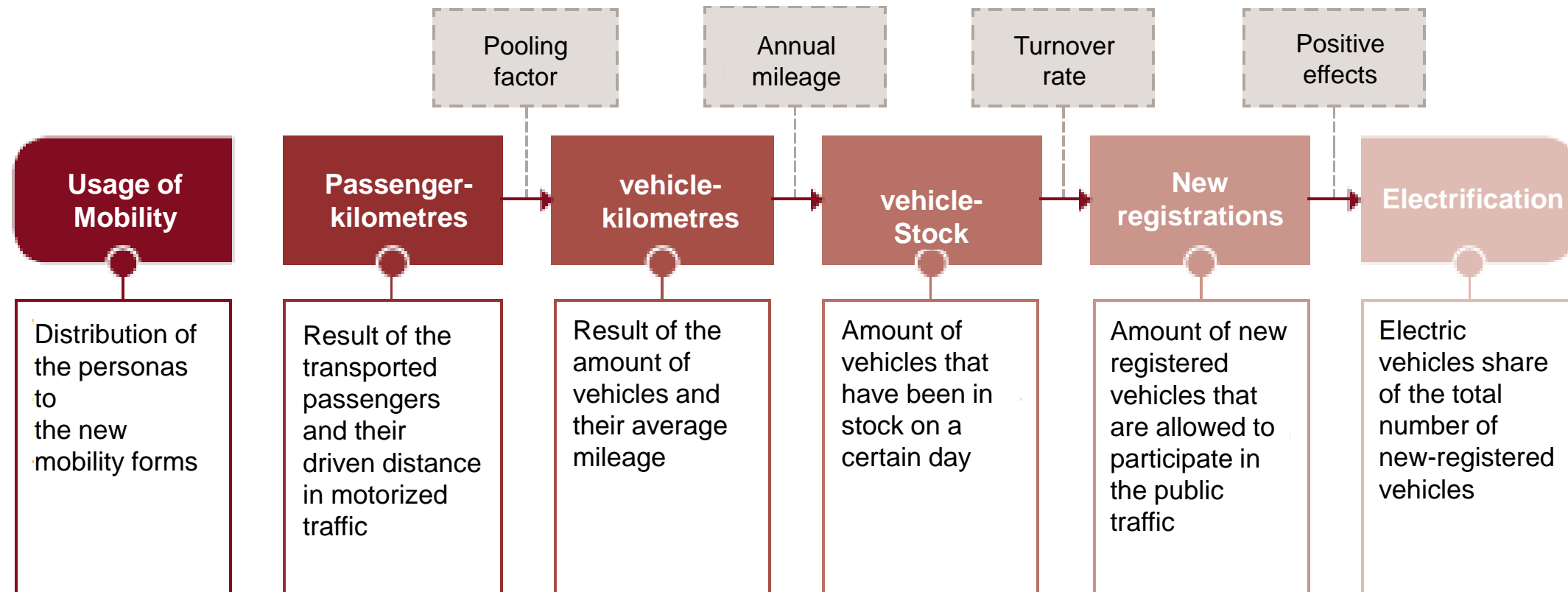
An increasing amount of young people living in cities do not own a car and use the car sharing concept in combination with public transport.



Autonomous vehicles will have a positive impact on sharing-concepts.

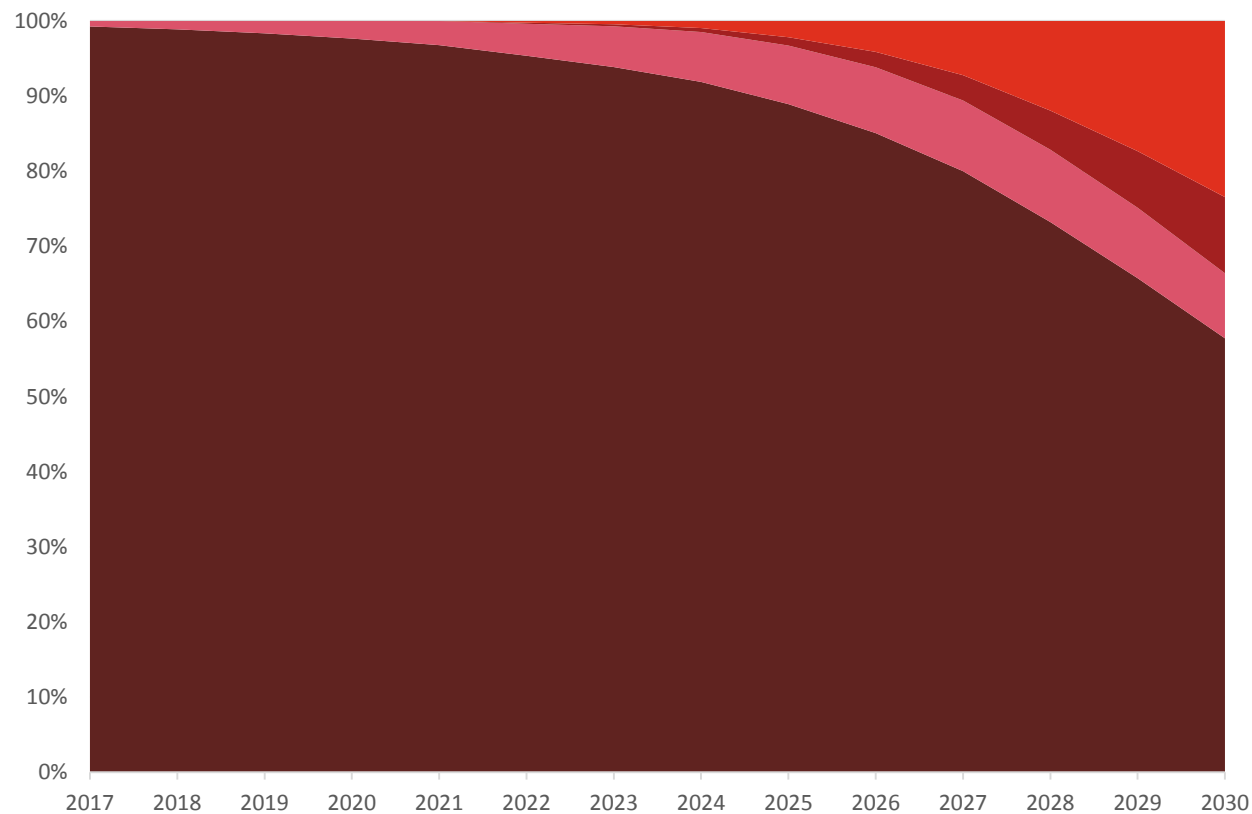
Autonomous and shared mobility will expand the scope of application for electric vehicles.

The basis for modelling the results is the forecast of the person-kilometres and the pooling factor

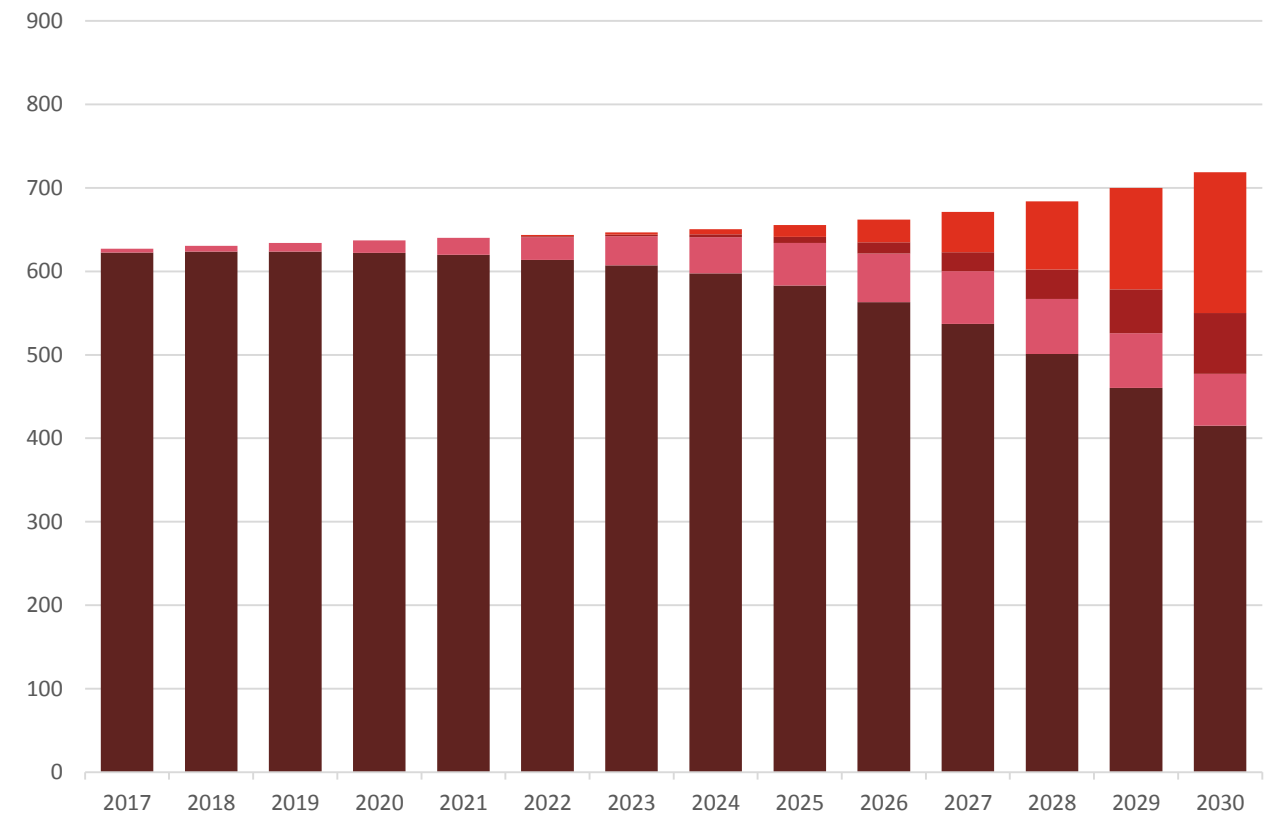


Despite current scepticism, it is estimated that 40% of all vehicle kilometres will be driven autonomously or shared in 2030

Germany: Distribution of mobility forms
2017-2030 (in percent)



Germany: Vehicle kilometres
2017-2030 (in billion kilometres)

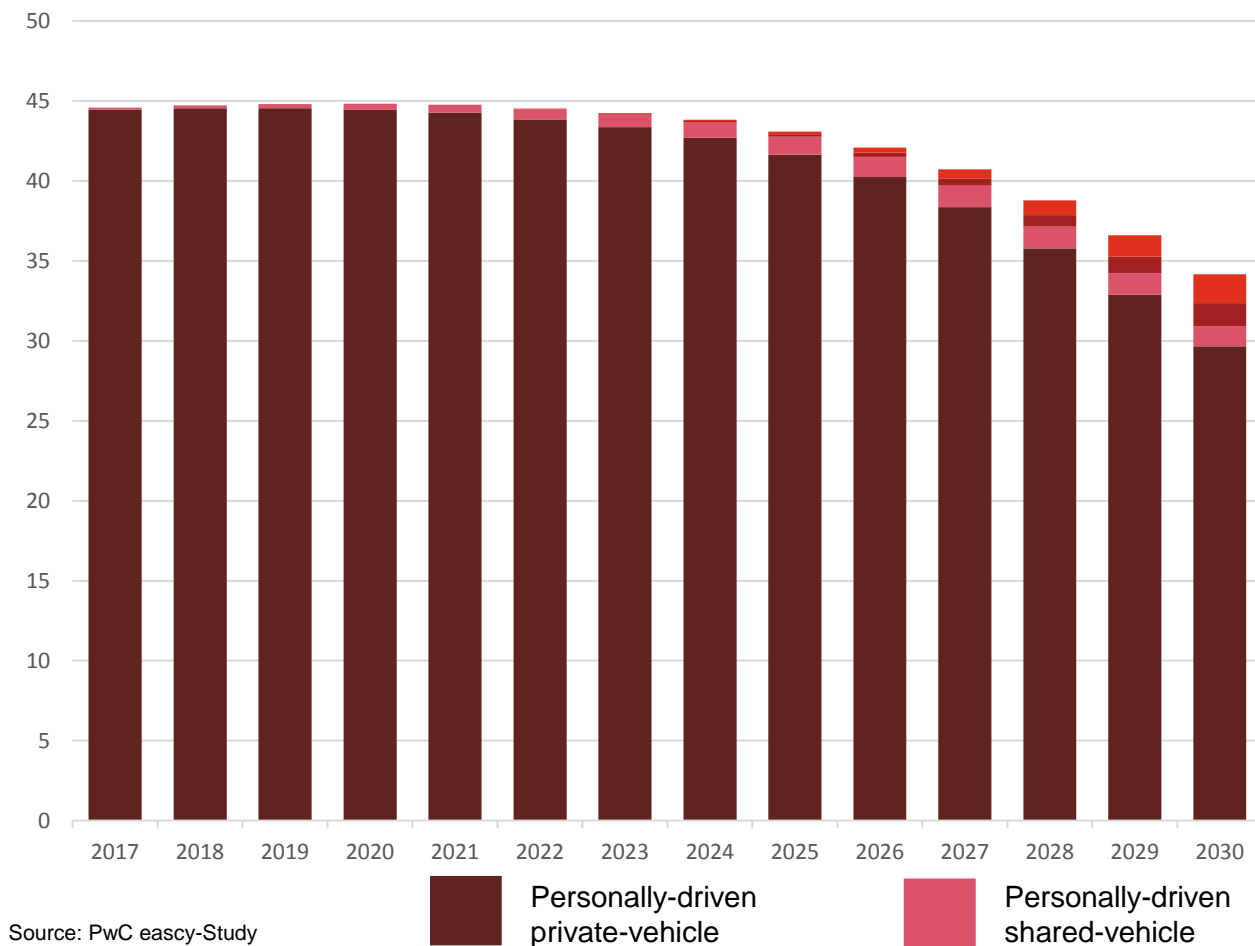


Source: PwC eascy-Study



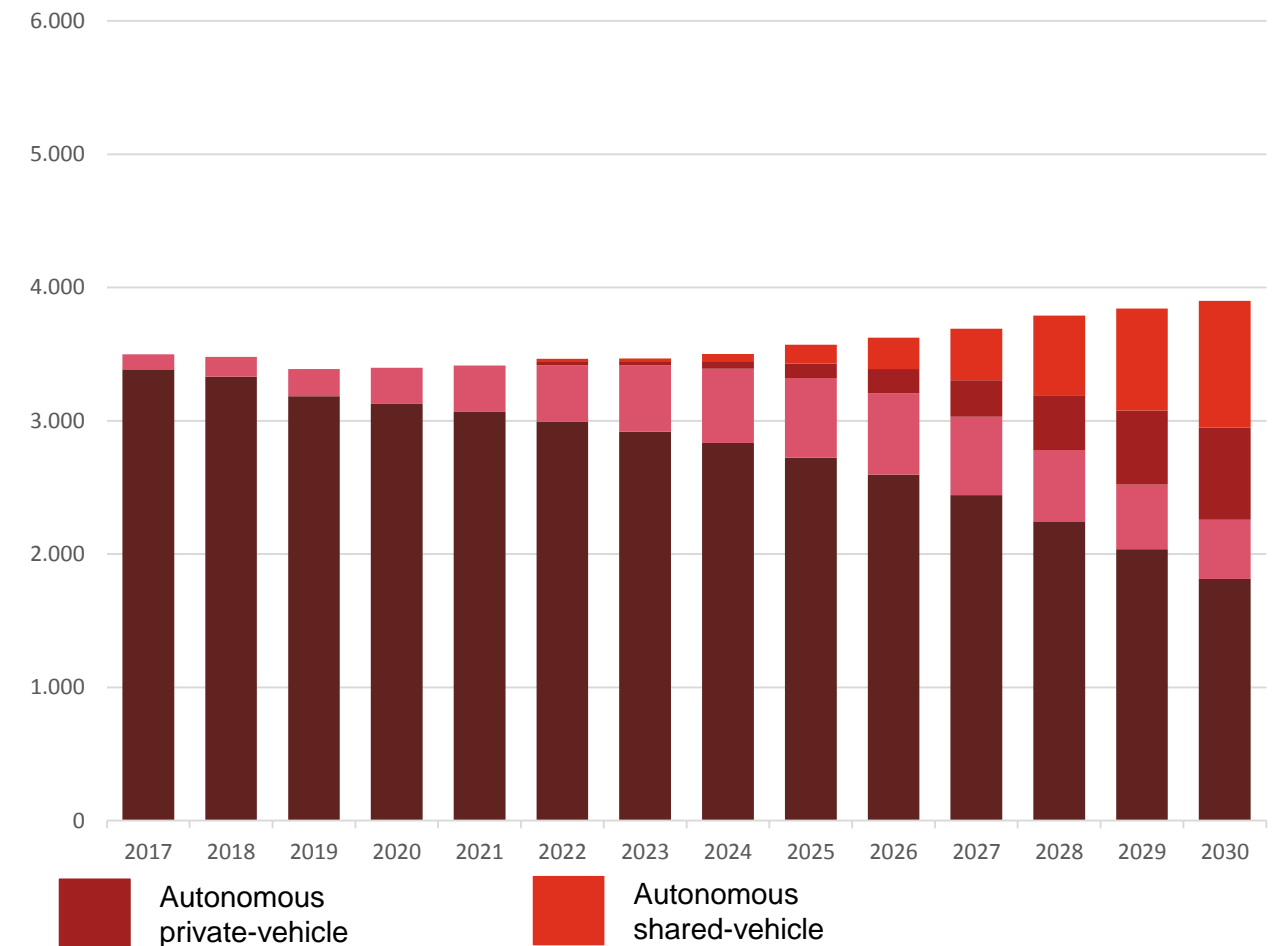
In Germany, vehicle stocks could drop by 20% by 2030 - but new registrations would rise by almost 20 percent in total

Germany: Stock by mobility forms
2017-2030 (in million)



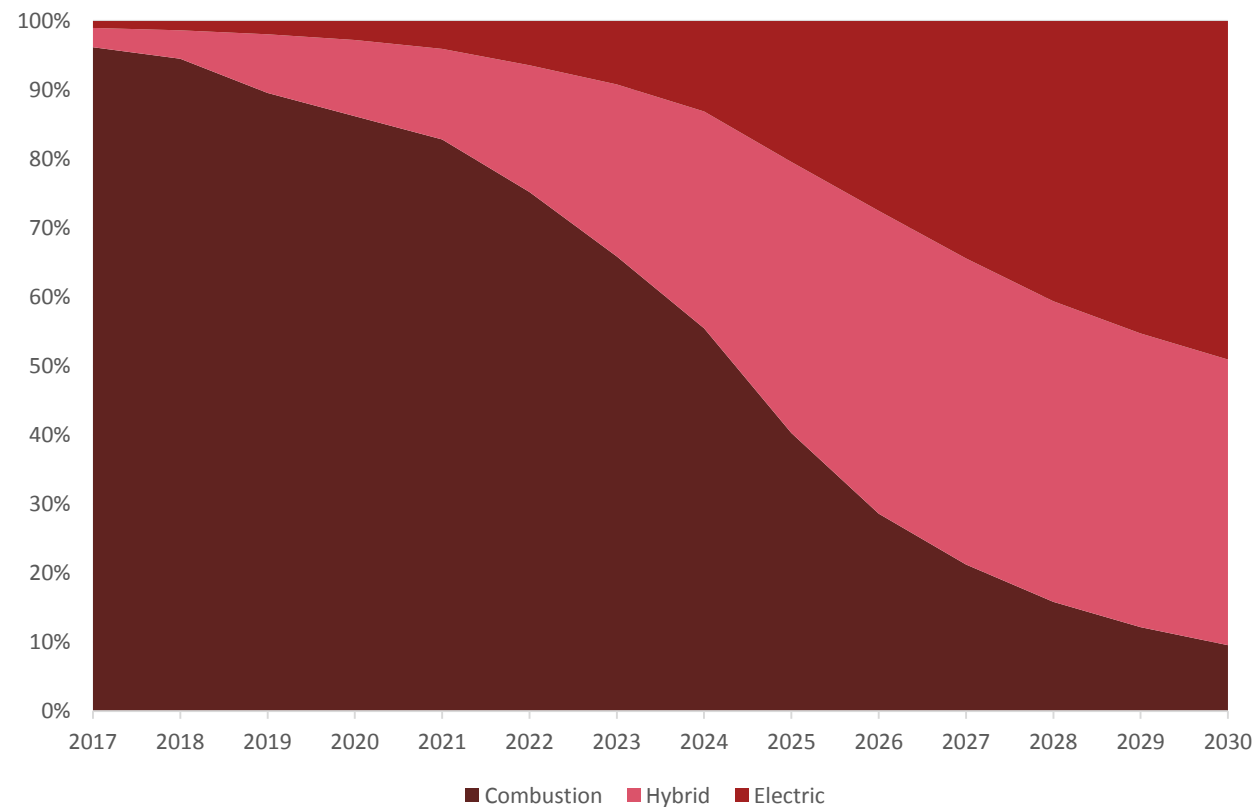
Source: PwC eascy-Study

Germany: Registrations by mobility forms
2017-2030 (in thousand)

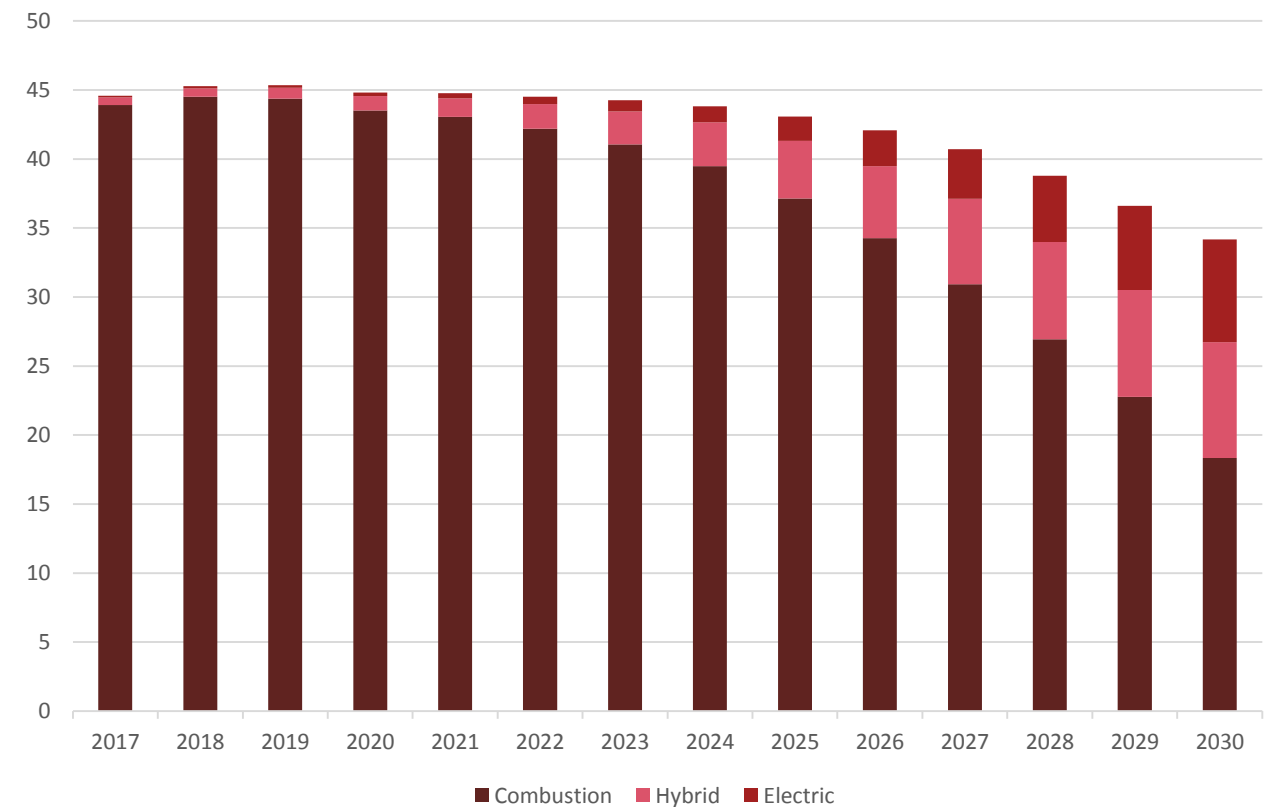


In Germany, hybrid drives will play an important role in the short-term - until 2025 electric vehicles are gaining importance

Germany: Registrations by drive types
2017-2030 (in percent)



Germany: Stock of drive types
2017-2030 (in million)

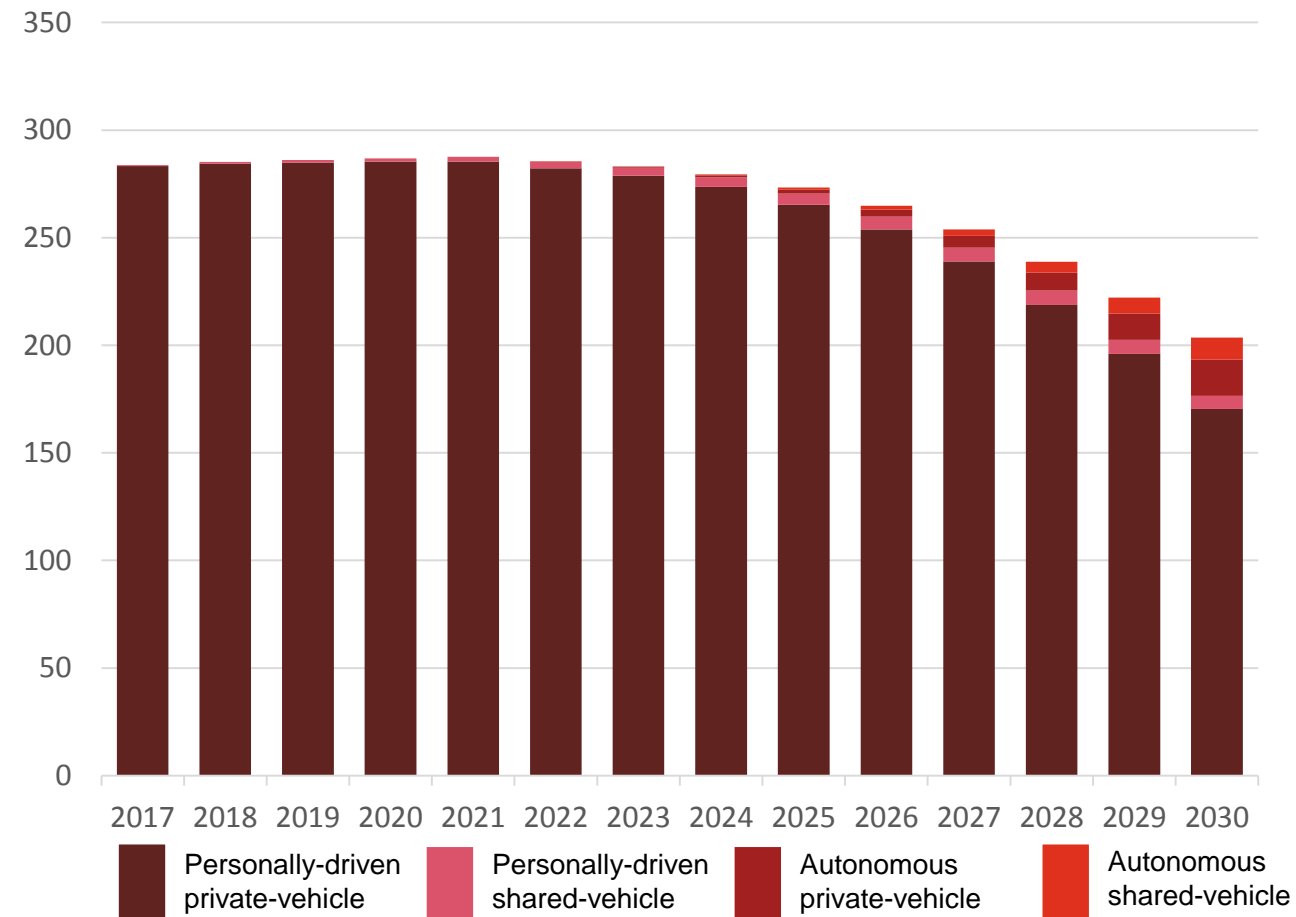


Source: PwC eascy-Study



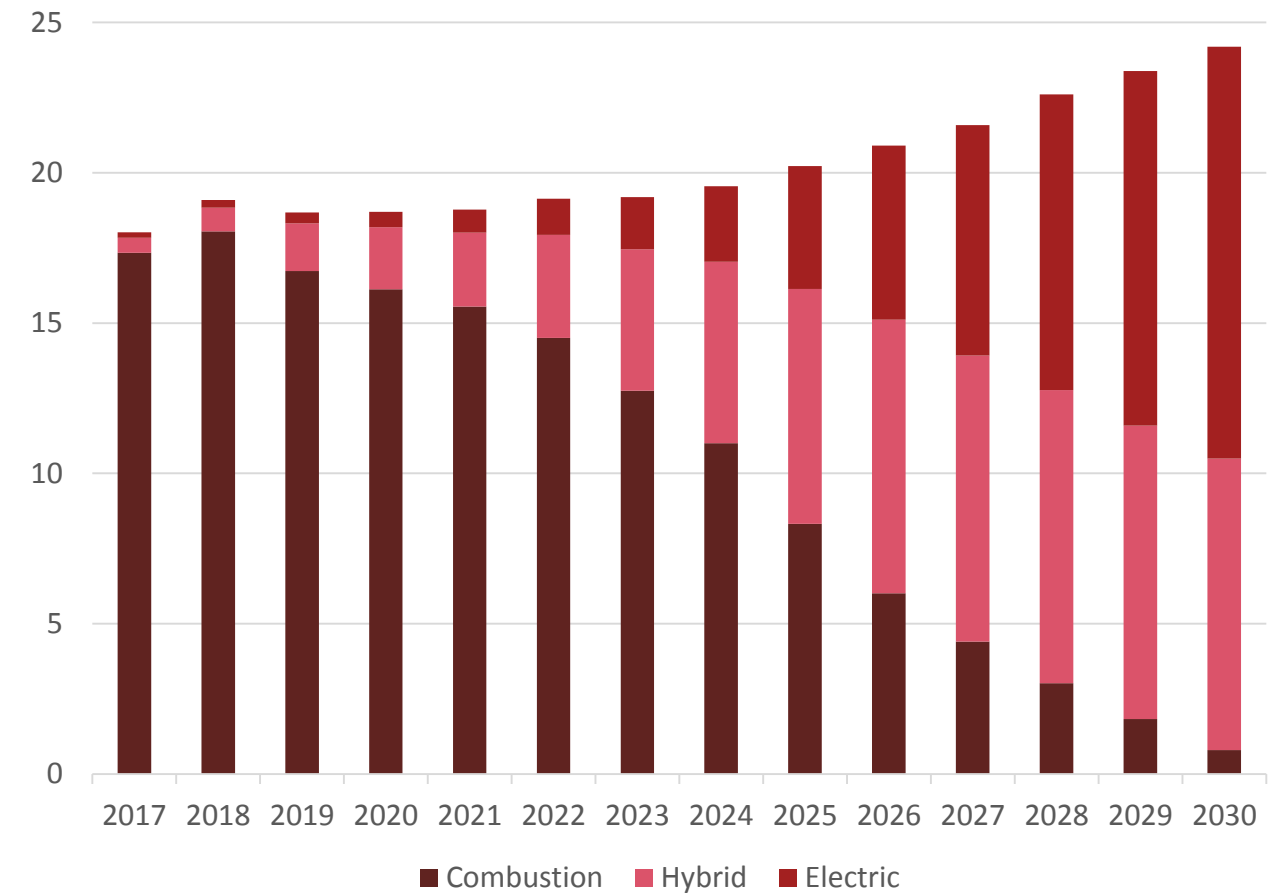
In 2030, the transition to electrified and (partially) autonomous vehicles will be in full swing – starting with new registrations

Europe: Vehicle stock
2017-2030 (in million)



Source: PwC eascy-Study

Europe: Drive types distribution on new registrations
2017-2030 (in million)



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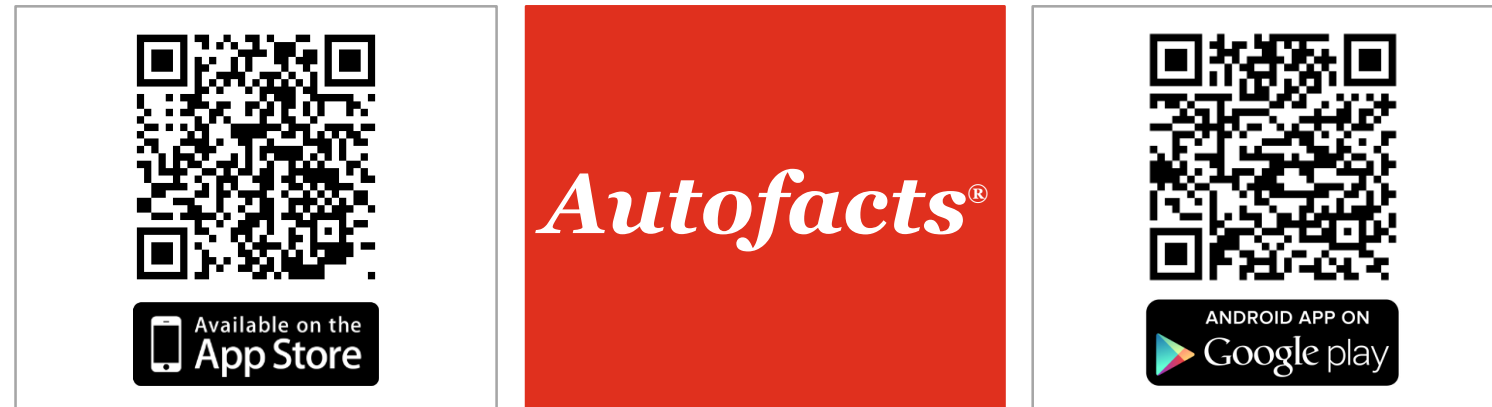
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