KPMG's Automotive Breakfast 2017

Luxembourg

—

March 29, 2017

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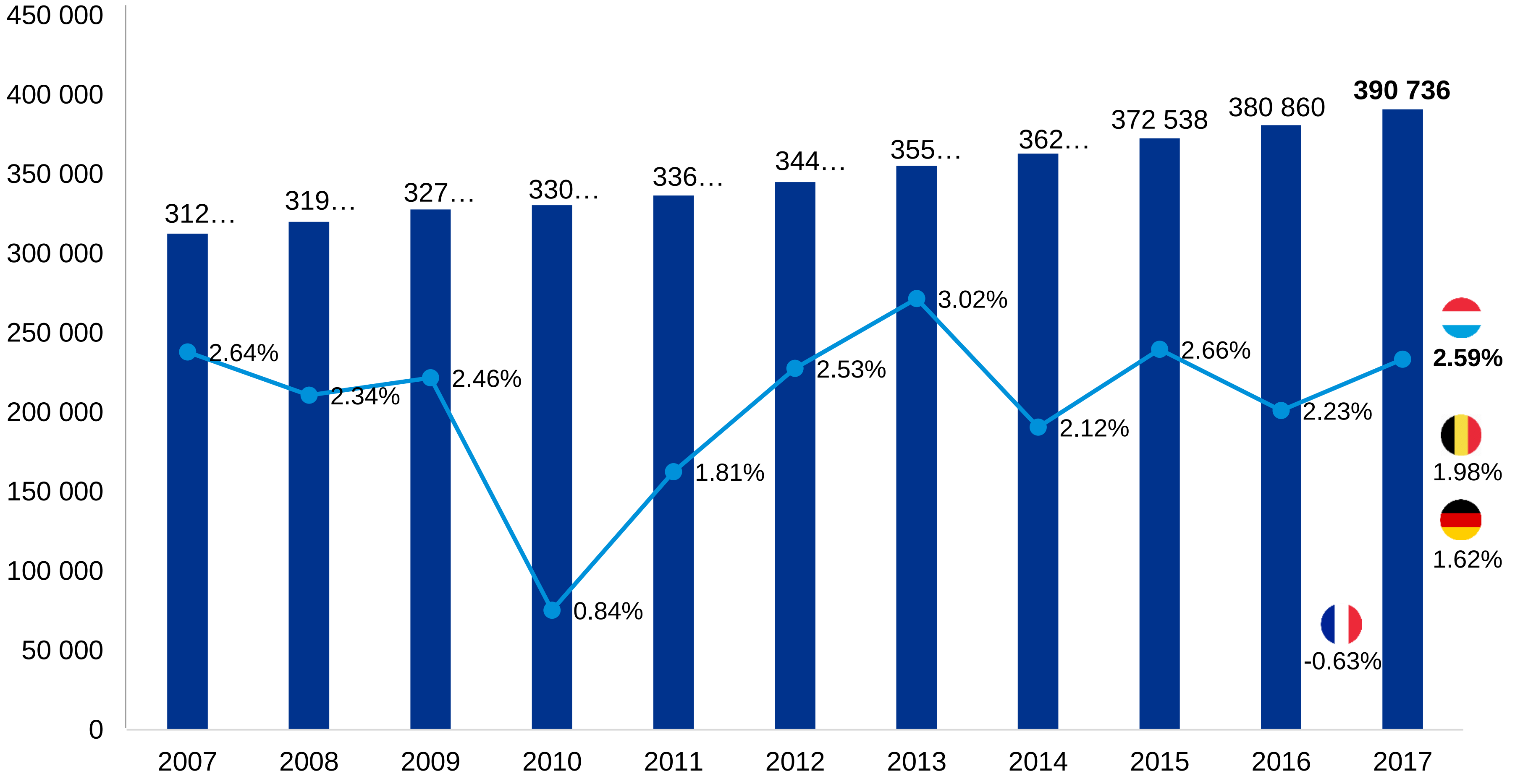


Private and mixed used cars registered in Luxembourg on the 1 January of each year.

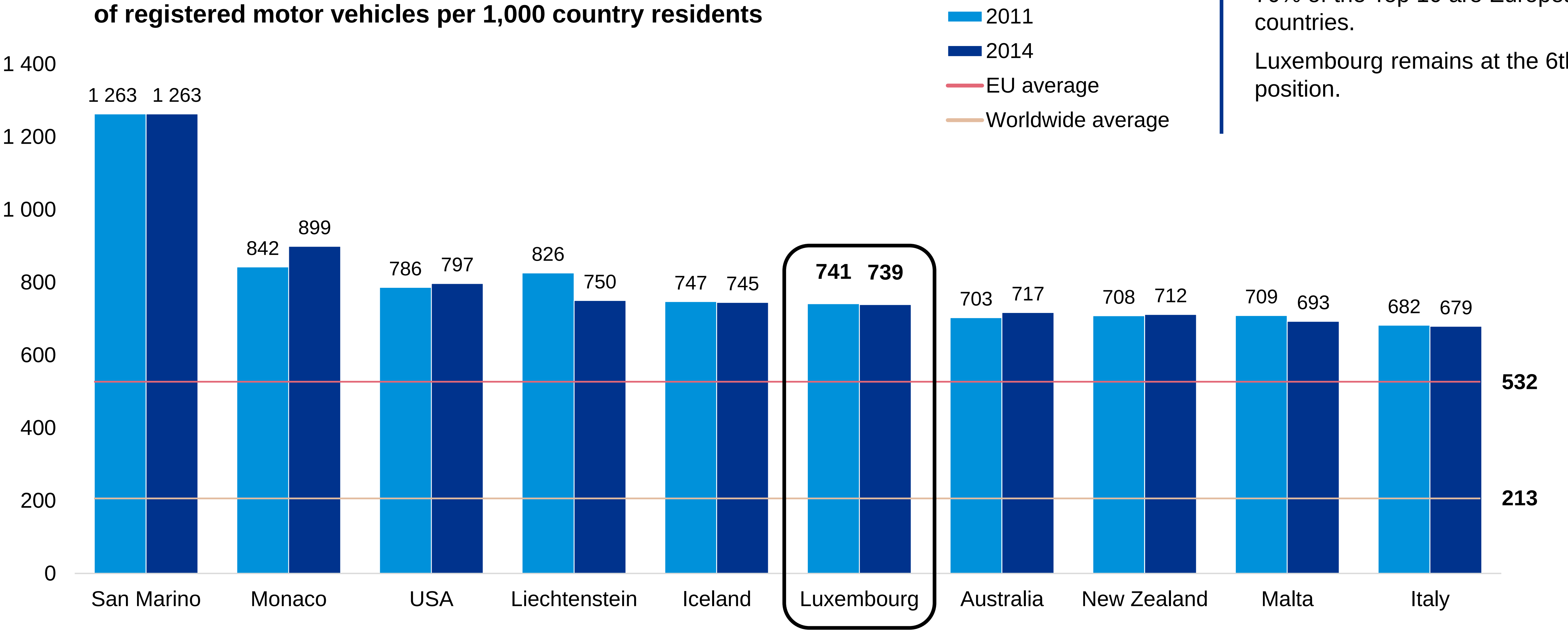
The growth is stable over the last decade.

At the pace of the 2007 - 2017 evolution, there should be 427 851 cars on the road in 2021.

Note : (a) FEBIAC (b) KBA (c) RSVERO
Source : Statec, Luxembourg portal for statistics, cars categories “private cars” and “mixed used car”

The car park ratio per resident

Top 10 of countries having the greatest number of registered motor vehicles per 1,000 country residents



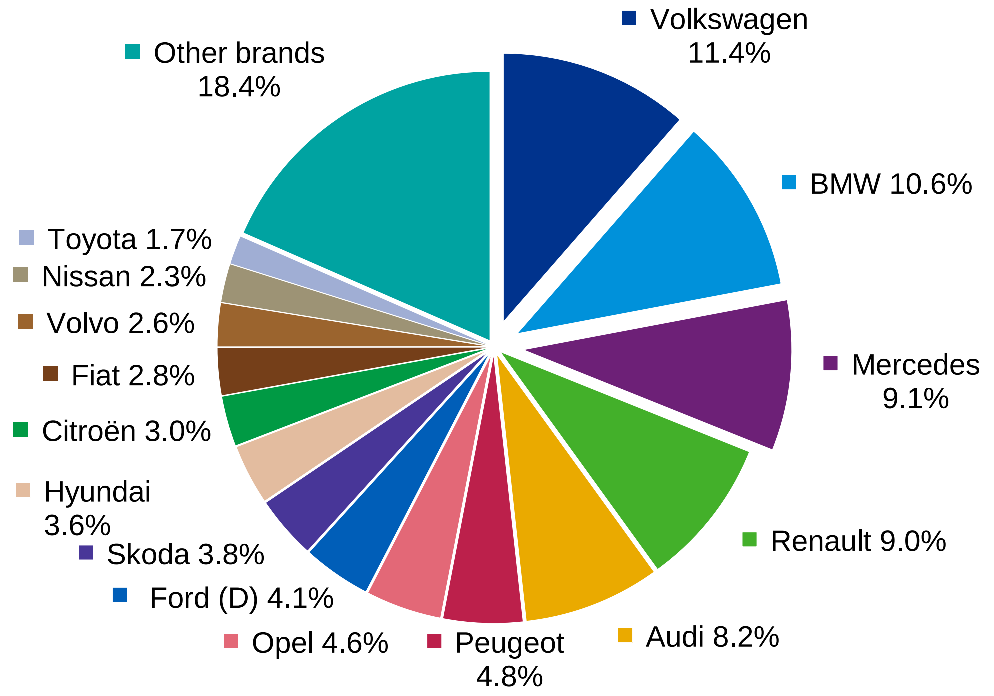
70% of the Top 10 are European countries.

Luxembourg remains at the 6th position.

Source : www.nationmaster.com and The World bank organization http://data.worldbank.org

Brand considerations

New registrations market shares in 2016



The top 3 represents nearly a third of the market.

New car registrations in 2016

	Brands	2016	Growth 2014 – 2016
1	Volkswagen	5 775	-10%
2	BMW	5 361	12%
3	Mercedes	4 576	27%
4	Renault	4 530	-10%
5	Audi	4 153	-14%
6	Peugeot	2 419	-11%
7	Opel	2 313	5%
8	Ford (D)	2 082	-10%
9	Skoda	1 921	27%
10	Hyundai	1 838	1%
11	Citroën	1 516	-33%
12	Fiat	1 432	19%
13	Volvo	1 304	6%
14	Nissan	1 158	-1%
15	Toyota	859	-6%
	Other brands	9 324	20%
	Total	**50 561**	1.5%

From 2014 to 2015, the registrations decreased by 6.7% and from 2015 to 2016 they increased by 8.8%.

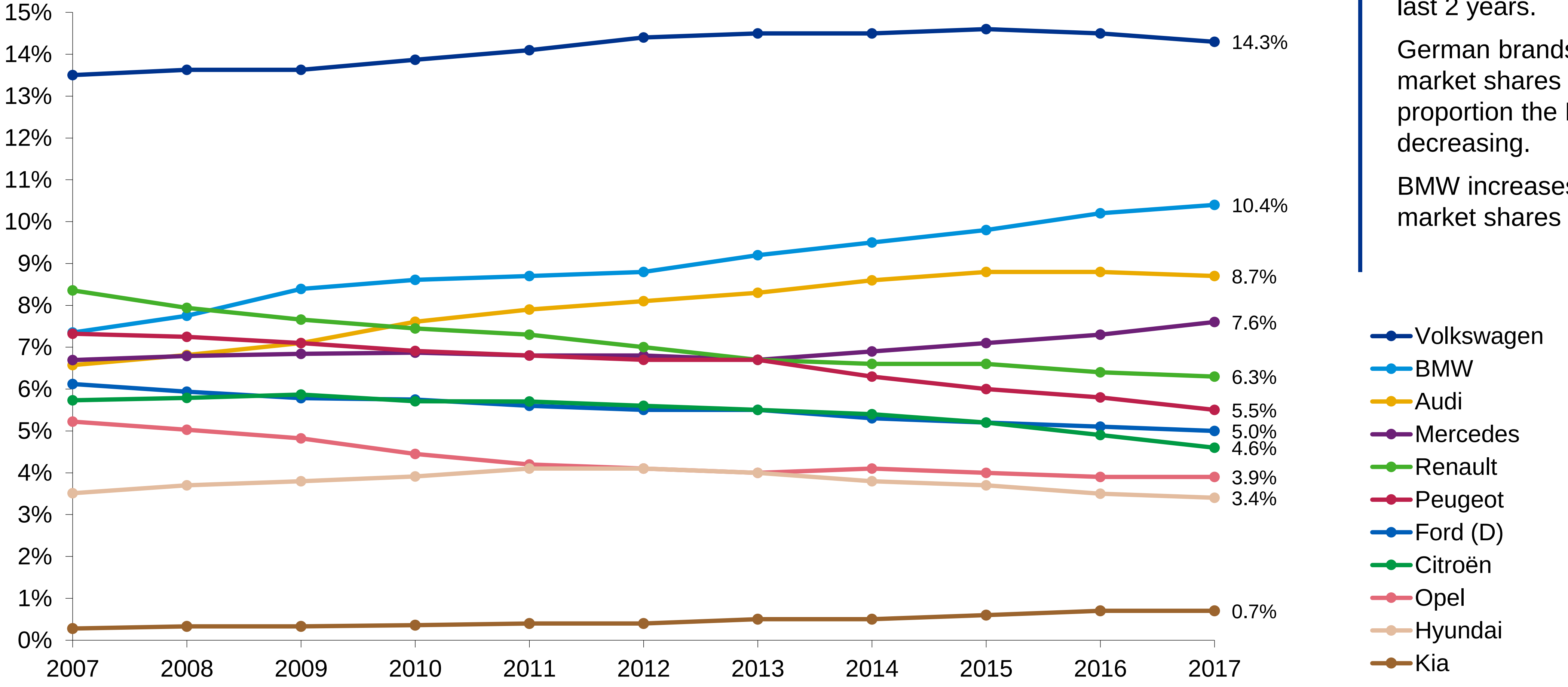
BMW, Fiat, Mercedes and Skoda grew significantly as it was already the case in the previous study.

Other brands include Mini (872), Seat (838), Porsche (816), JLR (692), Dacia (643).

Source : Statec, Luxembourg portal for statistics

Brand considerations

Most common brands of cars



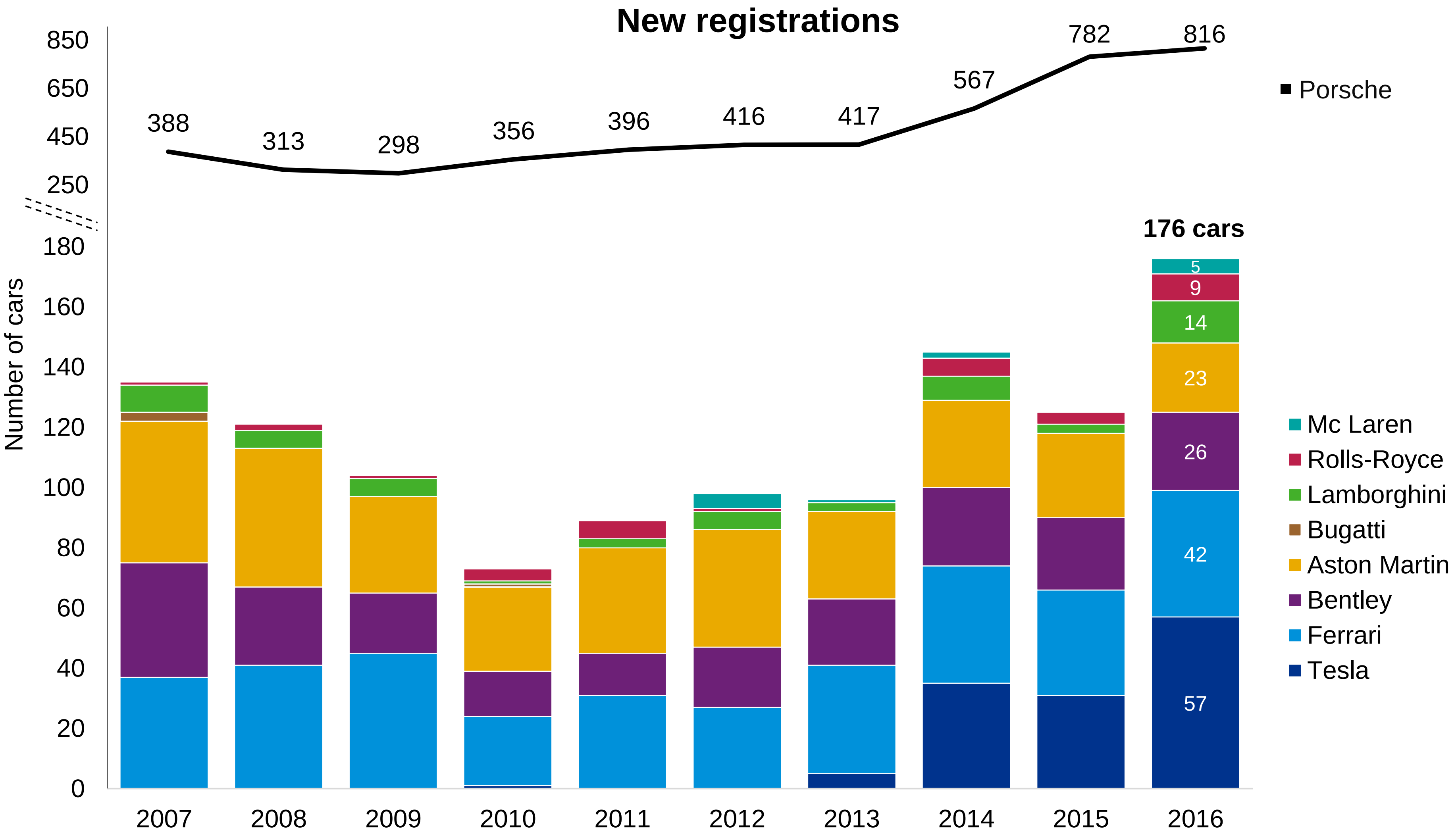
No change in the ranking since the last 2 years.

German brands increase their market shares in the same proportion the French brands are decreasing.

BMW increases continuously its market shares since 10 years.

Source : Statec, Luxembourg portal for statistics, cars categories “private cars” and “mixed used car”

Luxury car park



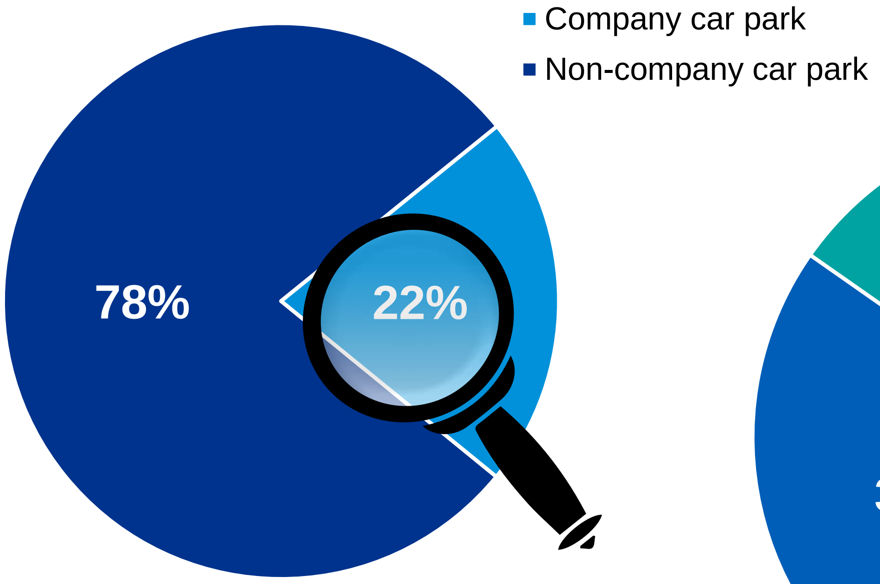
By the end of 2016, the luxury and high performance car brands represent 0.35% of the total new registrations.

In 2016, Porsche reached a new record of 816 new registrations (+44% since 2014).

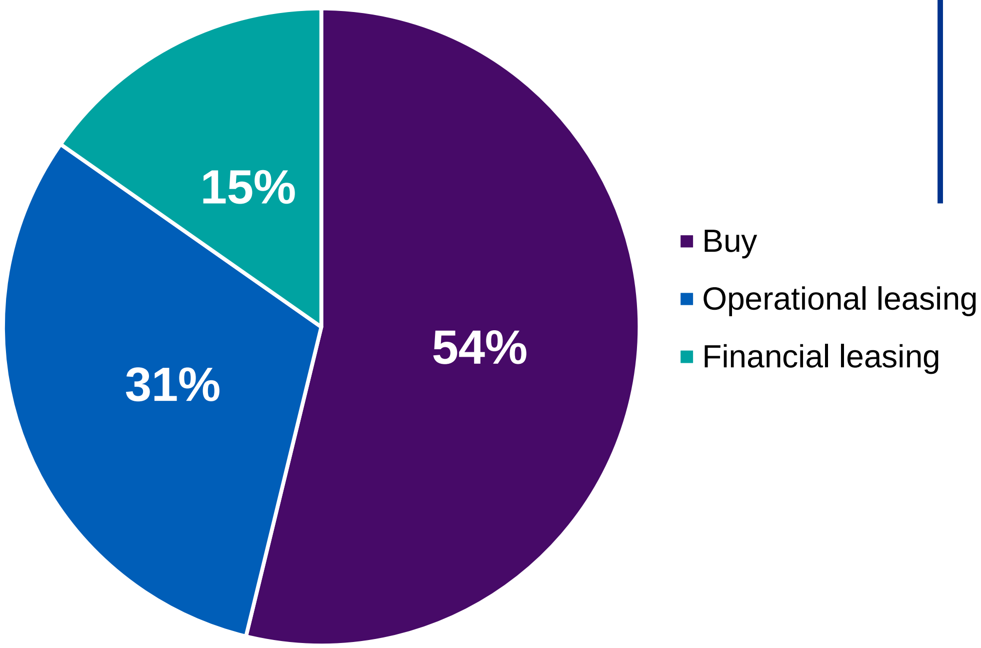
Source : Statec, Luxembourg portal for statistics

Company cars

Weight of company cars in the Luxembourg car park



Type of leasing among company cars



On the 1 January 2017, there were 84 898 company cars on the road (+4.6% since 2016).

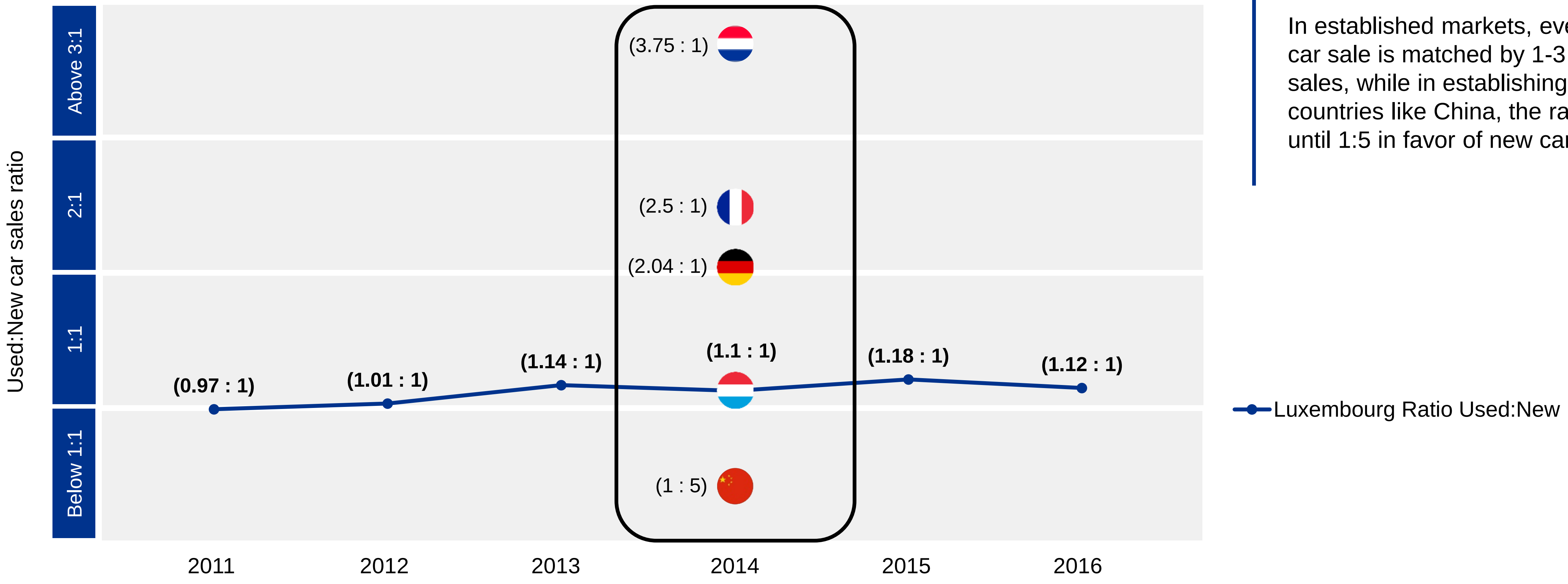
“Buy”, “operational leasing” and “financial leasing” are respectively estimated to 45 678, 26 250 and 12 970 cars.

The operational leasing market increased by 6% compared to last year.

Source : Mobiz, cars categories “private cars” and “mixed used car”

Registrations for used vs. new cars

New car sales growth and used:new car ratio indicate a market's maturity level



In 2016, there were 56 754 used cars vs. 50 561 new cars in Luxembourg.

In established markets, every new car sale is matched by 1-3 used car sales, while in establishing countries like China, the ratio goes until 1:5 in favor of new car sales.

Source : Statec and KPMG research & analysis, LMC, Euromonitor, BCA, National Trade Bodies.

The Luxembourg car park

Vehicle age

Average age of cars in 2015

7.7 years (a)

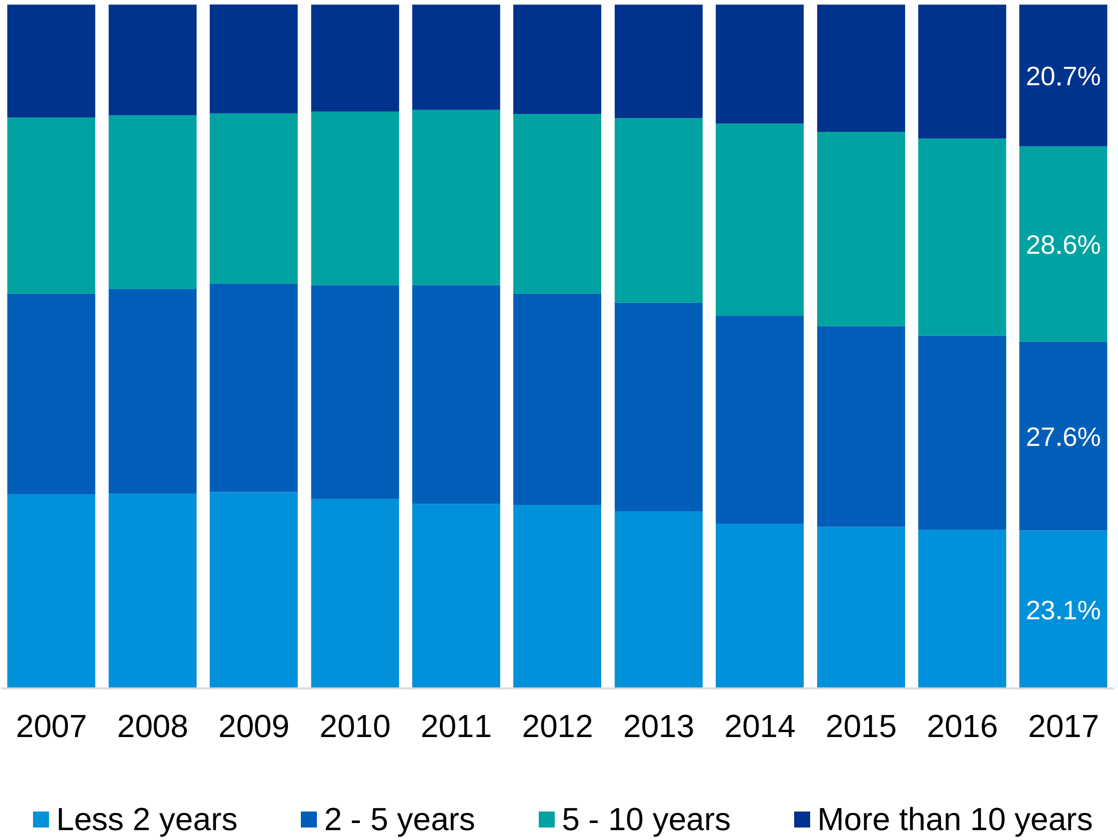
8.8 years (b)

8.8 years (c)

9 years (b)

9.7 years (d)

Car age evolution



The car park of Luxembourg remains younger compare to average European countries.

51% of the car park is not aged of more than 5 years against 55% in 2014.

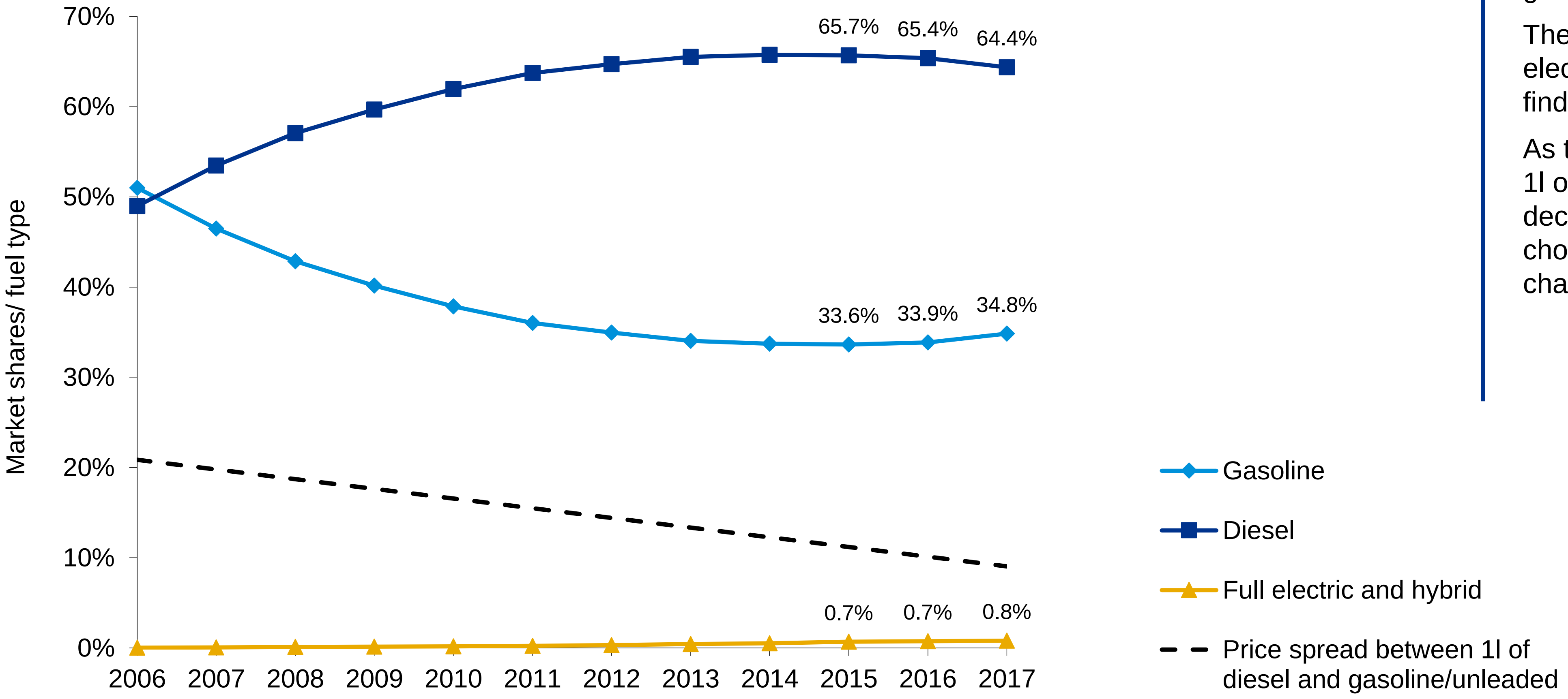
Compared to 2007, the category "more than 10 years" increased by 25% when the "less than 2 years" decreased by 19%.

Note : (a) www.snca.lu , (b) www.ccfa.fr, (c) www.febiac.be, (d) www.acea.be
Source : Statec, Luxembourg portal for statistics, cars categories "private cars" and "mixed used car"

The Luxembourg car park

Fuel type

Evolution of vehicles distribution per fuel type



Since 2015, the spread of market shares between diesel and gasoline is reversing.

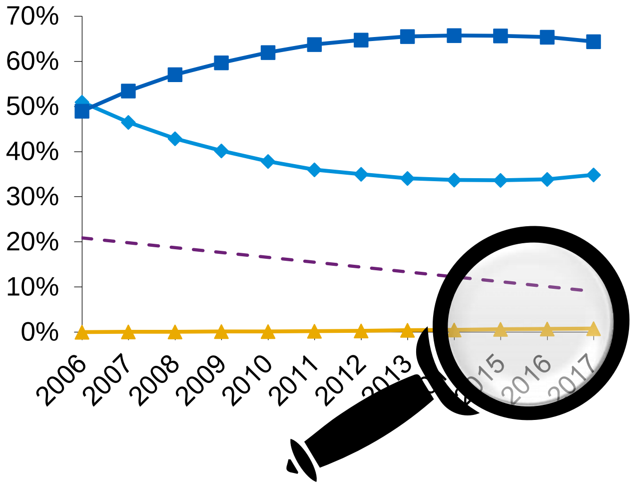
The new players being hybrid or electric are still facing hard times to find their audience.

As the spread between the cost of 1l of diesel / gasoline keeps decreasing, the arguments to choose a fuel type may be challenged.

Source : Statec, Luxembourg portal for statistics

Zoom on full electric and hybrid cars

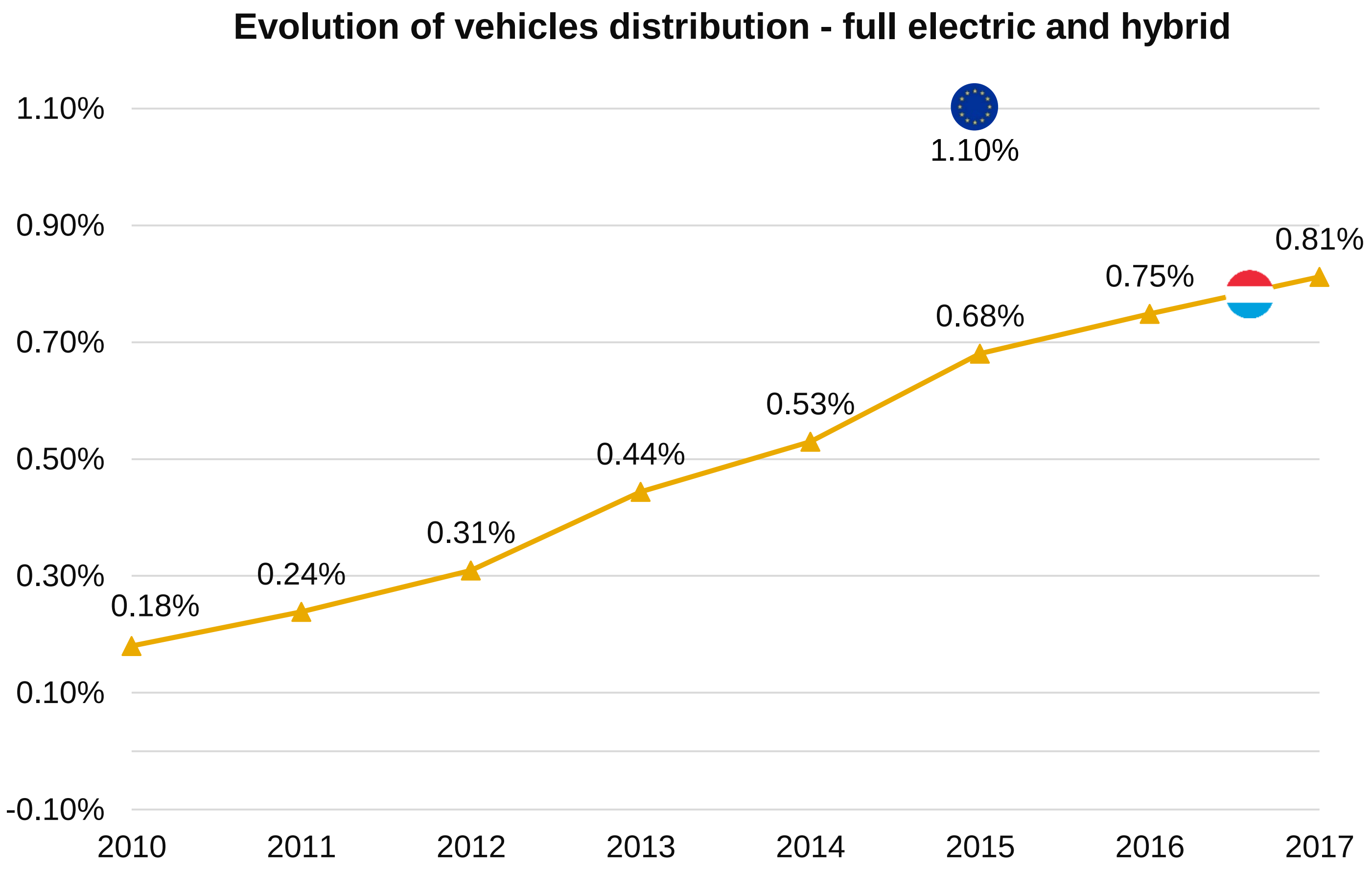
The Luxembourg car park



Between 2016 and 2017, the full electric and hybrid cars market increased by 11.21% (vs. 2.59% for the entire car market).

The 0.81% of market share represents 3 165 cars on the road. It was approximately 5 times less in 2010.

By deploying a network of 800 power stations across the country, the Government supports the target of 10% renewable energy in the transportation sector by 2020 (project Mobil 2020).

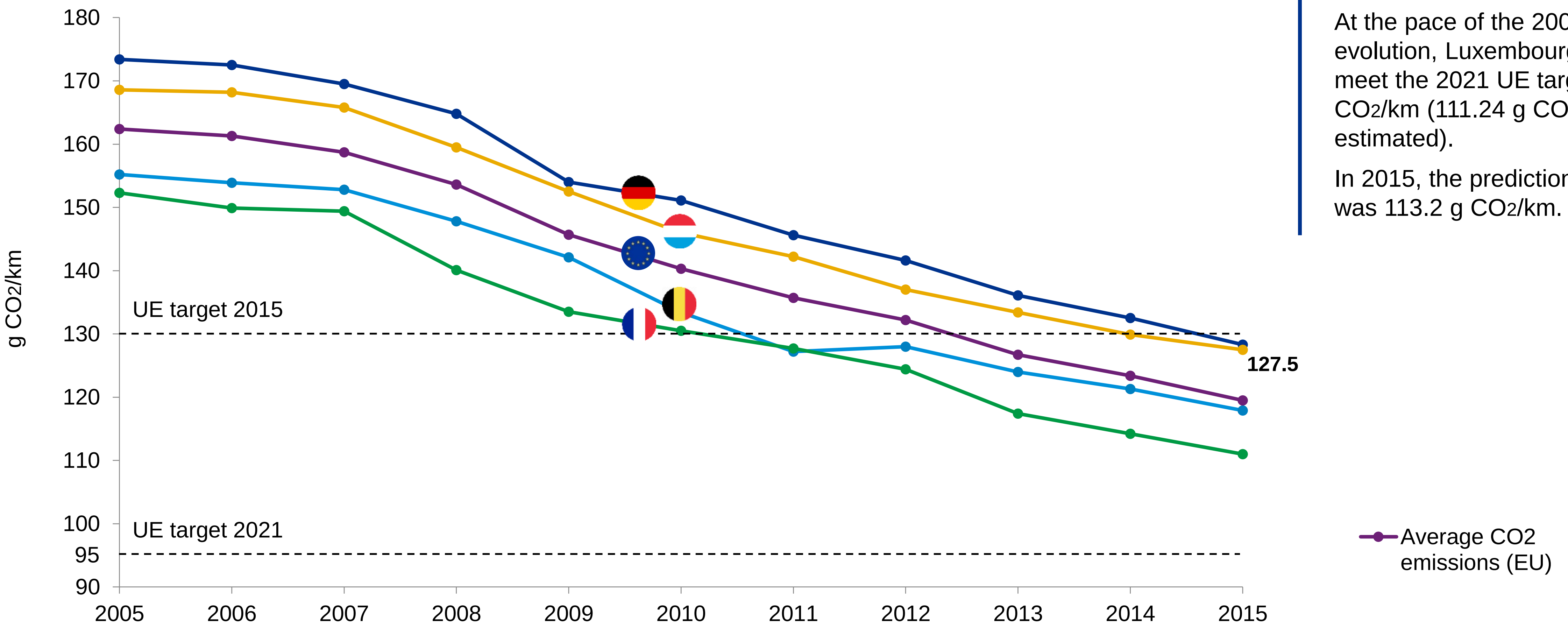


Source : Statec, Luxembourg portal for statistics

Environmental considerations

The CO2 emission level

Evolution of the average g CO2/km in Luxembourg and neighboring countries



Luxembourg met the 2015 UE target.

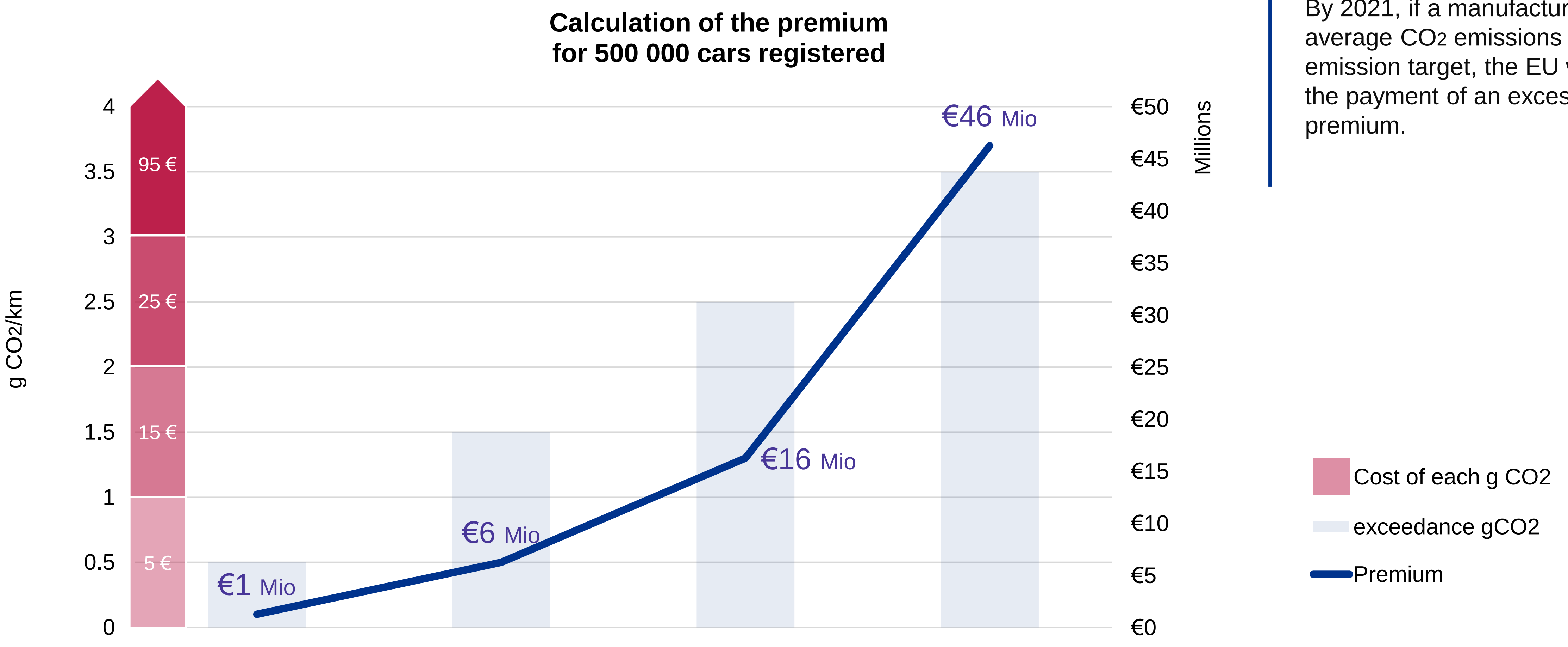
At the pace of the 2005 - 2015 evolution, Luxembourg should not meet the 2021 UE target of 95 g CO_2/km (111.24 g CO_2/km estimated).

In 2015, the prediction for 2021 was 113.2 g CO_2/km.

Source : European Agency for Environment http://www.eea.europa.eu

The EU legislation on CO_2 emission

By 2021, if a manufacturer's average CO_2 emissions exceed the emission target, the EU will require the payment of an excess emission premium.

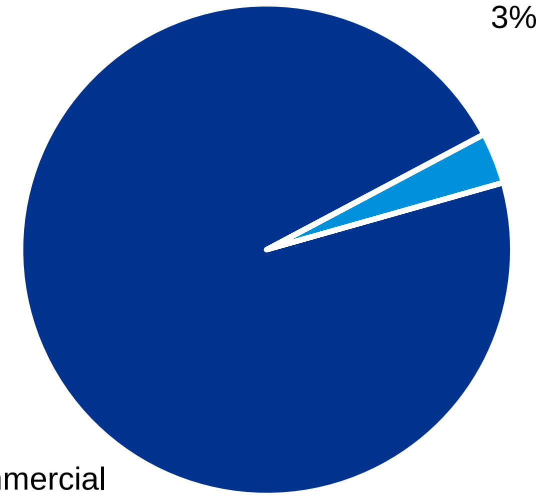


Source : European Environment Agency - Monitoring CO2 emissions from new passenger cars and vans in 2015

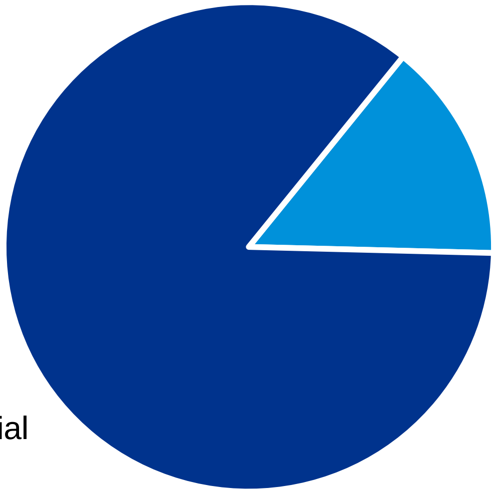
The Luxembourg automotive sector

Automotive commercial activities

Turnover of commercial sector in 2014



Number of employees in the commercial sector in 2014



In 2014, turnover of 3.61 billion € (-2% compared to 2012) for automotive commercial activities, on 106.73 billion € (+14%) for the entire commercial sector.

7 027 employees (+0.2%) in the automotive commercial sector, for a total of 48 252 employees (+5%) in the commercial sector.

Note : Based on code NACE Rev 2 (G) (Nomenclature générale des Activités économiques dans les Communautés Européennes)
Source : Statec, Luxembourg portal for statistics

Tax considerations for leasing cars

Tax considerations for leasing cars

LEVEL OF CO_2 EMISSIONS	BEFORE TAX REFORM	AFTER TAX REFORM		
	All CO_2 emissions and engines categories	Percentage of price of the vehicle purchased at new (incl. VAT)		
		Gasoline (pure or hybrid) or Compressed Natural Gas	Diesel (pure or hybrid)	100% battery electric or hydrogen
0 g/km	1.5			0.5
> 0-50 g/km	1.5	0.8	1.0	
> 50-110 g/km	1.5	1.0	1.2	
> 110-150 g/km	1.5	1.3	1.5	
> 150 g/km	1.5	1.7	1.8	

Source : KPMG Luxembourg

Tax considerations for leasing cars

Salary sheet

- Tax class 1
- Retail price 35 000 €
- Monthly leasing fee 700 €
- 50 – 110 g CO_2/km

DIESEL			
Categories	Without vehicle (a) (c)	With vehicle (b)	
		2016	2017
Monthly gross salary	4 000 €	3 300 €	3 300 €
+ Benefit in kind	0 €	525 € 1.5%	420 € 1.2%
Social contributions	491 €	468 €	455 €
Taxes	530 €	558 € (d)	441 €
Net salary	3 019 €	2 289 €	2 448 €

2017 vs. 2016

Tax gain : 1 404 €/year

Net salary gain : 1 908 €/year

(a) Package of remuneration cash only
(b) Package of remuneration cash and non cash benefit
(c) 2017 tax brackets, tax credits and social security rates used
(d) Temporary tax for budget balance included for 2016

Source : KPMG Luxembourg

Tax considerations for leasing cars

Salary sheet

- Tax class 1
- Retail price 35 000 €
- Monthly leasing fee 700 €
- 50 – 110 g CO_2/km

GASOLINE			
Categories	Without vehicle (a) (c)	With vehicle (b)	
		2016	2017
Monthly gross salary	4 000 €	3 300 €	3 300 €
+ Benefit in kind	0 €	525 € 1.5%	350 € 1%
Social contributions	491 €	468 €	447 €
Taxes	530 €	558 € (d)	421 €
Net salary	3 019 €	2 289 €	2 478 €

2017 vs. 2016

Tax gain : 1 644 €/year

Net salary gain : 2 268 €/year

(a) Package of remuneration cash only
(b) Package of remuneration cash and non cash benefit
(c) 2017 tax brackets, tax credits and social security rates used
(d) Temporary tax for budget balance included for 2016

Source : KPMG Luxembourg

Tax considerations for leasing cars

Salary sheet

- Tax class 1
- Retail price 35 000 €
- Monthly leasing fee 700 €
- 0 – 50 g CO_2/km

HYBRID GASOLINE			
Categories	Without vehicle (a) (c)	With vehicle (b)	
		2016	2017
Monthly gross salary	4 000 €	3 300 €	3 300 €
+ Benefit in kind	0 €	525 € 1.5%	280 € 0.8%
Social contributions	491 €	468 €	438 €
Taxes	530 €	558 € (d)	402 €
Net salary	3 019 €	2 289 €	2 506 €

2017 vs. 2016

Tax gain : 1 872 €/year

Net salary gain : 2 604 €/year

(a) Package of remuneration cash only
(b) Package of remuneration cash and non cash benefit
(c) 2017 tax brackets, tax credits and social security rates used
(d) Temporary tax for budget balance included for 2016

Source : KPMG Luxembourg

Tax considerations for leasing cars

Salary sheet

- Tax class 1
- Retail price 35 000 €
- Monthly leasing fee excluded electricity provided 700 €
- 0 g CO_2/km

ELECTRIC			
Categories	Without vehicle (a) (c)	With vehicle (b)	
		2016	2017
Monthly gross salary	4 000 €	3 300 €	3 300 €
+ Benefit in kind	0 €	525 € 1.5%	175 € 0.5%
Social contributions	491 €	468 €	425 €
Taxes	530 €	558 € (d)	372 €
Net salary	3 019 €	2 289 €	2 551 €

2017 vs. 2016

Tax gain : 2 232 €/year

Net salary gain : 3 144 €/year

(a) Package of remuneration cash only
(b) Package of remuneration cash and non cash benefit
(c) 2017 tax brackets, tax credits and social security rates used
(d) Temporary tax for budget balance included for 2016

Source : KPMG Luxembourg

Fiscal treatment of leasing repurchase

Repurchase of the leasing car at the end of the contract

- Repurchase statement in leasing contract
- Repurchase facility at the maturity of the contract with a fixed-price defined

Remaining value of the car

- Benefit in kind to tax = rate on catalog sale price – price paid by the employee
- Limit of taxation: The aggregated fiscal value of the two benefits cannot exceed the global value of the company car

Tax Authorities
Grand-Ducal Regulation of 23 December 2016 (art. 5)

- Taxable benefit if repurchase at a lower price than market value
- Market value of the car defined by a depreciation plan
- Tax claimed at the transfer of rights from the leasing firm to the employee

Period of use (months)	Vehicle residual value determined by the tax authorities
24	55%
36	45%
48	35%
60	25%

Source : KPMG Luxembourg

KPMG's Global Automotive Executive Survey

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Global Automotive Executive Survey 2017

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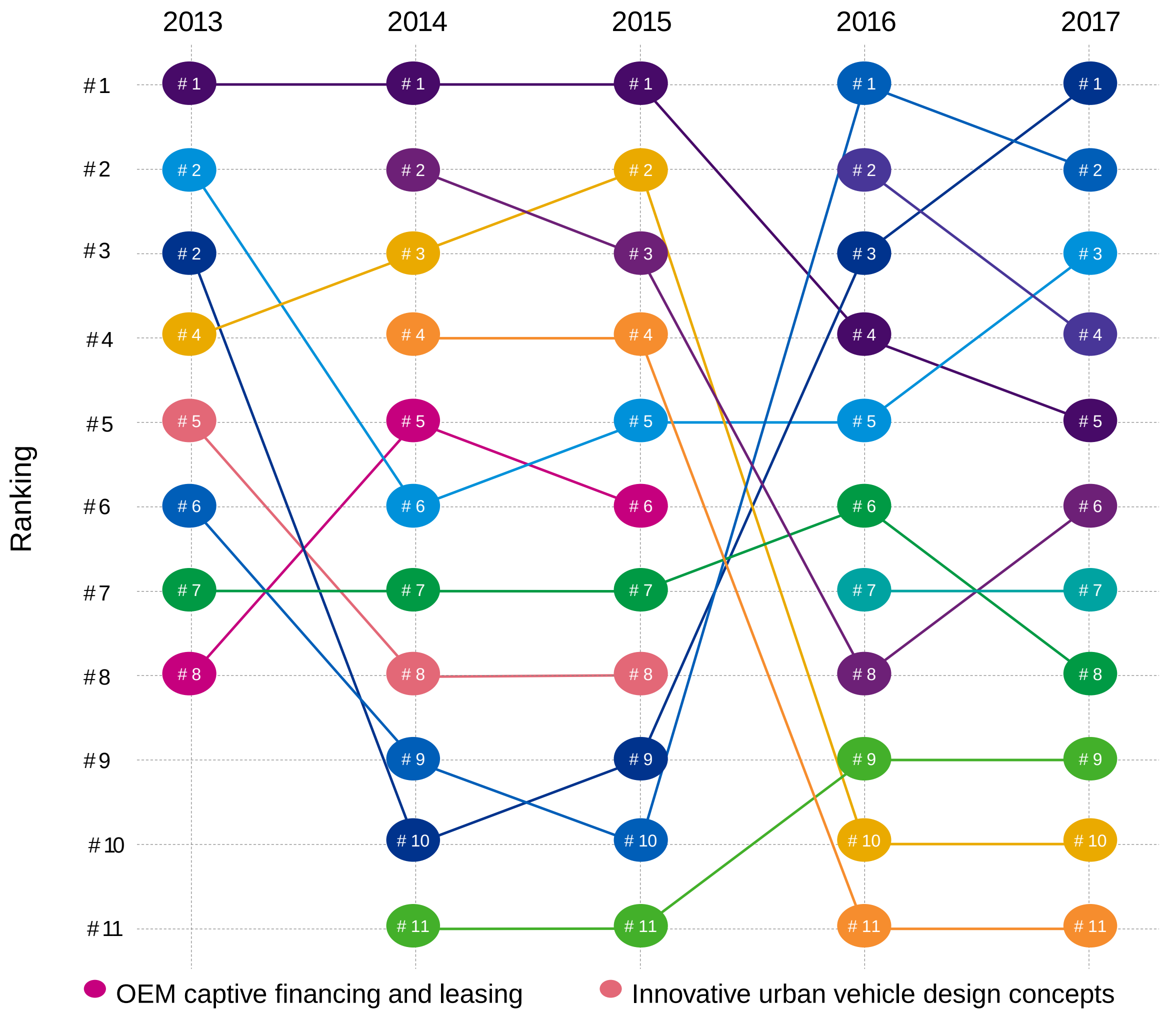
What are the key trends until 2025?



Percentage of executives rating a trend as extremely important

Battery electric vehicles (BEVs)	50 %
Connectivity and digitalization	49 %
Fuel cell electric vehicles (FCEVs)	47 %
Hybrid electric vehicles (HEVs)	44 %
Market growth in emerging markets	43 %
Increasing use of platform strategies and standardization of modules	40 %
Creating value out of big data (e.g. vehicle & customer data)	39 %
Mobility-as-a-service/Car sharing	39 %
Autonomous and self-driving cars	37 %
Downsizing of internal combustion engines (ICEs)	31 %
Rationalization of production in Western Europe	31 %

Source : KPMG's Global Automotive Executive Survey 2017

Lost in translation

62%

believe
BEVs will fail due to infrastructure.

Success BEVs depends on infrastructure and application

Coordinate of d actions for infrastructure setup, a clear distinction of reasonable application areas (e.g. urban, long-distance), and a business model that covers more than just the vehicle hardware needs to be established.

Source : KPMG’s Global Automotive Executive Survey 2017

From Offline to Online

85%

agree that the digital ecosystem will generate higher revenues than the hardware of the car itself.

Digital ecosystem will be the main source for revenue and not the car itself

With significant upcoming changes in powertrain technologies the profits of today's OEMs will decrease due to the necessity of high investments. The digital ecosystem can counter strike these developments and generate higher revenues if it taps both data streams, the one generated within the car (upstream) and the one customers bring into the car (downstream).

The connected car will revolutionize the way we measure success

Measuring success based on unit sales is outdated. Connected vehicles will generate higher revenue streams based on endless digital upselling potentials over the entire lifecycle. Management only based on product profitability is over – customer value will become the core focus.

Source : KPMG's Global Automotive Executive Survey 2017

From Offline to Online

35%

agree that OEMs will become the Grid Master.

15%

agree that OEMs will become contract manufacturers.

OEMs have to decide on their future role today

OEMs understand that they have to decide on whether they want to **be a contract manufacturer or a customer-centric service provider** (Grid Master).

There will definitely be manufacturers that will not be able to monetize data due to a lack of data literacy and premium brand awareness. These OEMs will most likely only provide hardware in the future.

Source : KPMG's Global Automotive Executive Survey 2017

From Offline to Online

48%

of consumers believe that drivers of vehicles are the sole owners of consumer data.

31%

of executives believe OEMs are the natural owners of customer data

There is a difference between vehicle and customer data

Customers are more willing to share vehicle data compared to behavior data – but in any case this only works if there is a basis of trust. Today, executives grant customers a small say on what happens to their data.

Source : KPMG's Global Automotive Executive Survey 2017

Geopolitical turmoil & regional shifts

76%

agree that the global share of vehicles sold in China will be above 40% in 2030.

EU as it is today will be history in 2025 and will suffer from regional shifts

Western Europe is not only facing political changes. **Shifting production volumes to growth markets is another serious threat to Western Europe**.

There is a clear tendency for an even stronger shift towards China

The majority of executives expect the **global share of vehicles sold in China to reach 40% by 2030**. Nevertheless, **Chinese companies** are surprisingly **not seen as a threat** regarding disruptive innovation from the outside-in perspective.

Source : KPMG's Global Automotive Executive Survey 2017

Taking the temperature on e-technologies

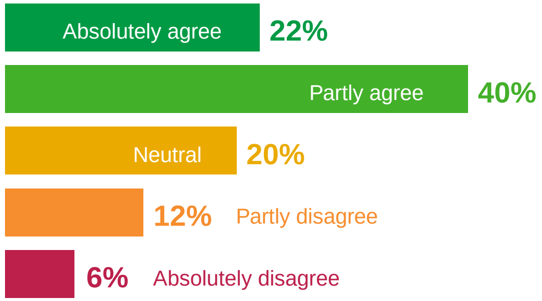
Battery electric vehicles will fail due to infrastructure challenges while fuel cell electric vehicles are seen as the real breakthrough for electric mobility.

The hypothesis that BEVs will fail reveals regional differences among executives.

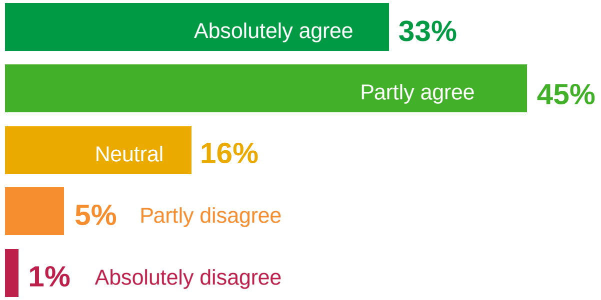
… most of **Western European** executives see the concept of BEVs to be unsuccessful because of infrastructure challenges …

… one third of all **Chinese executives disagree.**

62% of executives agree that BEVs will fail due to infrastructure challenges.



78% of executives agree that FCEVs will be the real breakthrough for electric mobility.



Note : Percentages may not add up to 100 % due to rounding.
Source : KPMG's Global Automotive Executive Survey 2017

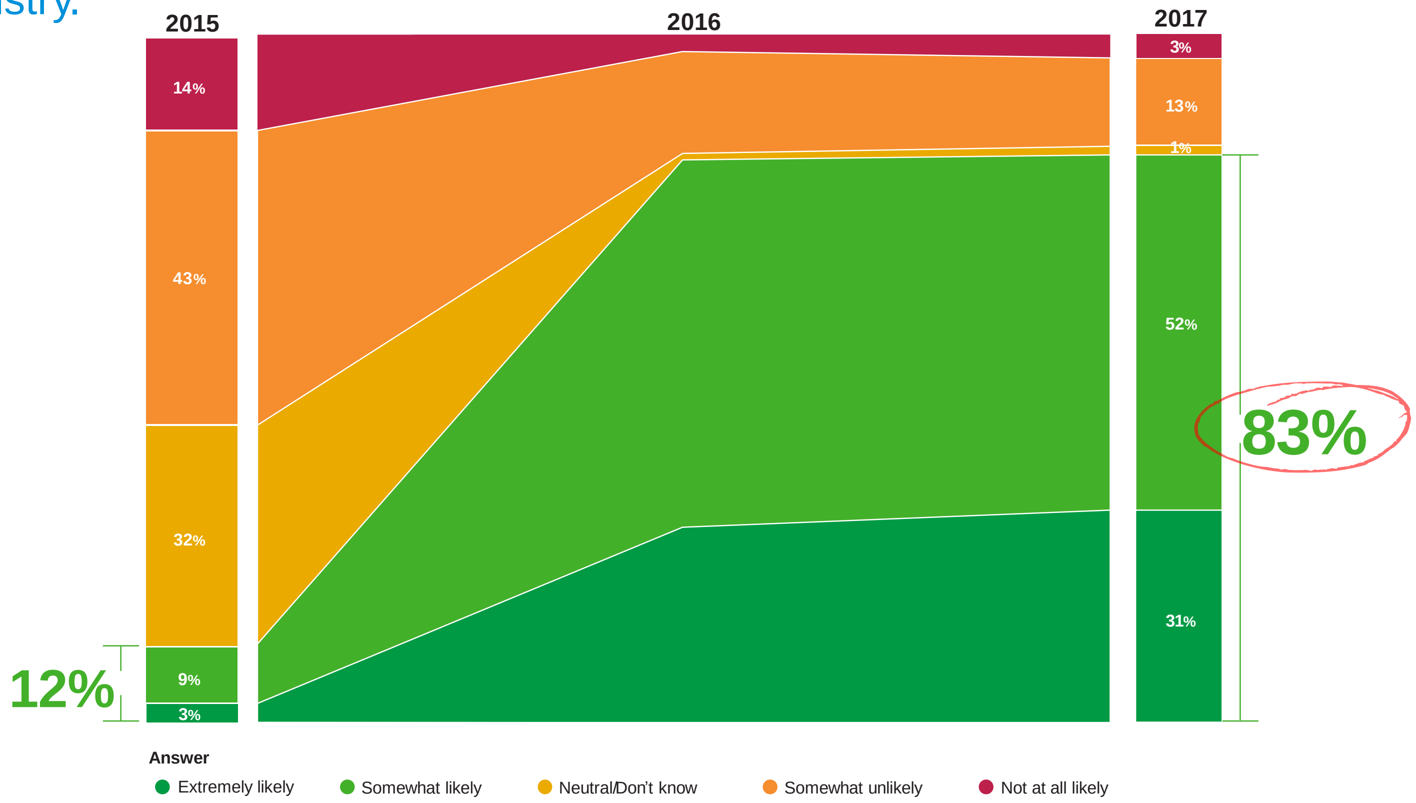
How likely do you consider a major business model disruption?

83%

of executives think there will be a **major business model disruption** in the automotive industry.

Executives in the **Americas** consider the likelihood of a business model **disruption the highest**.

In contrast, a smaller share of executives from **Europe, Mature Asia and the Rest of the World** consider a business model disruption as extremely likely.



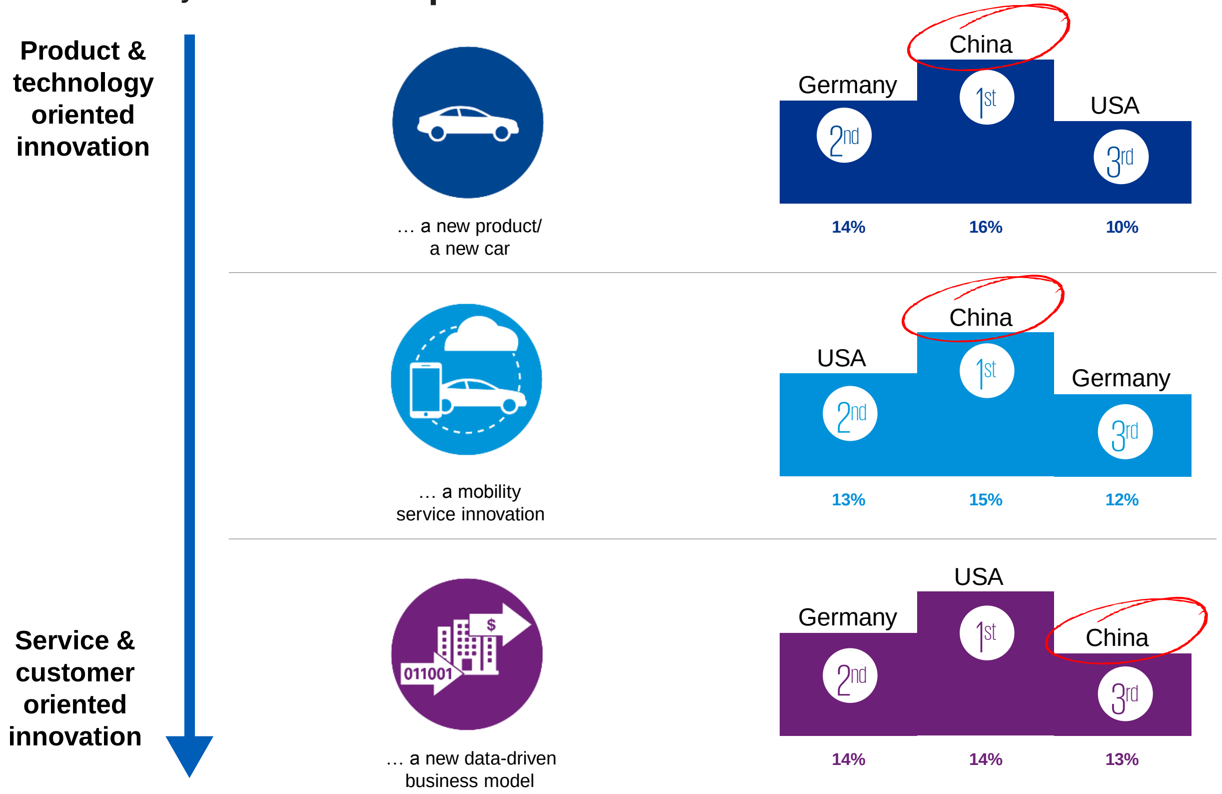
Note : Percentages may not add up to 100 % due to rounding.
Source : KPMG's Global Automotive Executive Survey 2017

Where to pilot a launch of an innovation?

There are three key markets to pilot a launch of a new car or service: China, Germany and the USA

When just looking at executives outside of China, the USA and Germany, the results for the top three are robust, which shows that **the opinion is not influenced by executives favoring their home market.**

In which country would executives pilot a launch of …



Note : Percentages may not add up to 100 % due to rounding.
Source : KPMG's Global Automotive Executive Survey 2017

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