

UK Auto: Brexit and Beyond

VRA Seminar 2020 Vision

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UK in a Changing Europe



*“Does your car have any idea why
my car pulled it over?”*

UK Auto:

Where are we now? Where Next?

New Car Market trends

Brexit

ICE to ACE: New technologies & value chain...

Policy issues

UK New Car Market trends 2019

- UK sales down **7%** in 2018, and so far 2019: **-2.95%**
- 2019 market shares so far: diesels **25.7%** (33%); petrol **65.2%** (62%); AFVs **9.1%** (5%) of which plug ins **2.7%**
- Remember that Diesels took a huge bashing in 2018: Diesels **-30%** Petrol **+9%**, AFVs **+21%**
- Little sign of diesel's decline coming to an end: over 30 straight months of diesel decline. 2019: **-21%**
- Big discounts & pre-reg cars back in a big way
- 2019 as a whole?

SMMT 2019 New Car forecasts

- Cars registrations at 2.330m, **down 1.6%** on the 2018 level.
- Diesel car volume of 0.621m, down 17% on 2018 and reducing market share to 26.6%.
- AFVs registrations to rise 14% and plug-ins up 28%, taking market shares to 7% and 3%

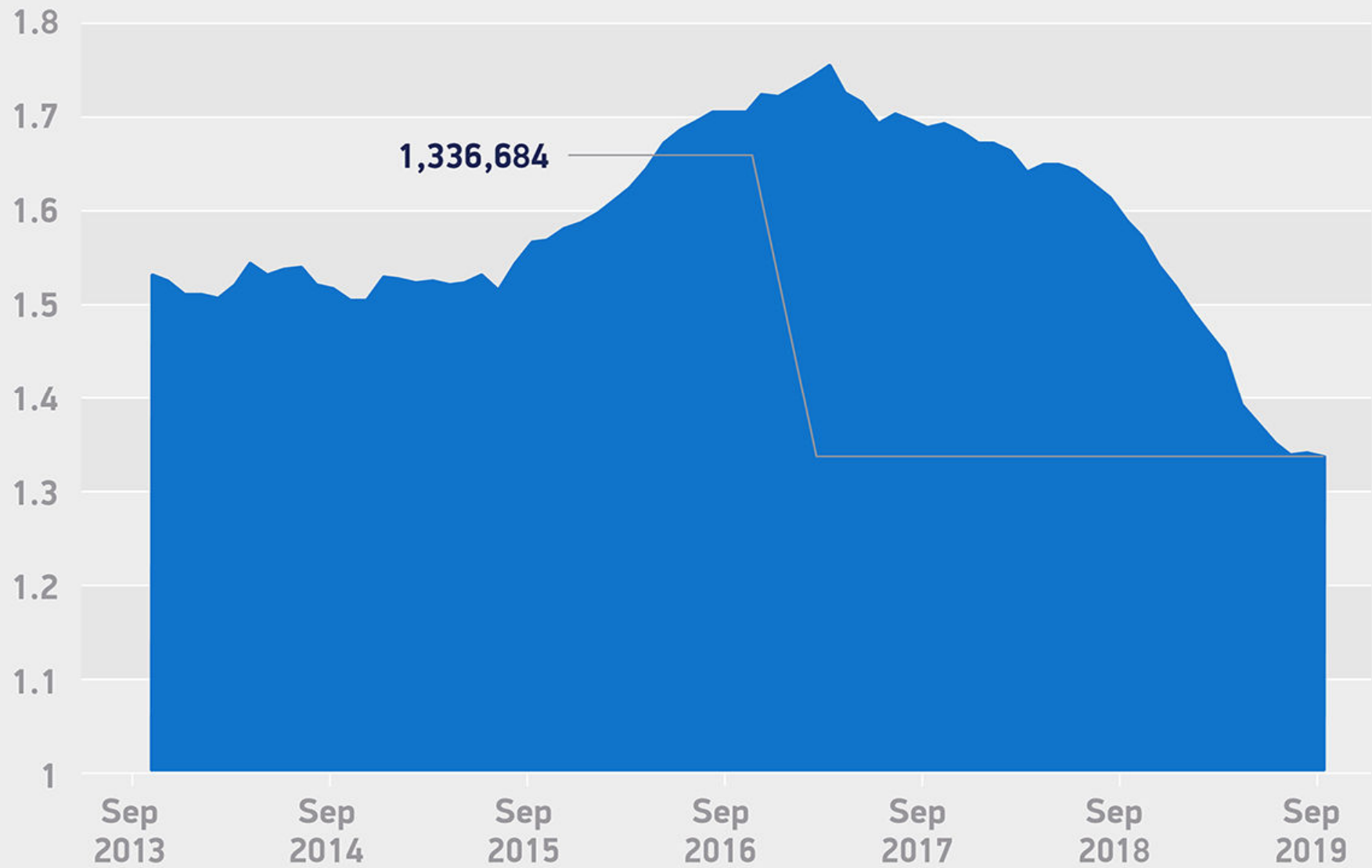
Market downturn: why?

- UK market 2019 (so far) -2.5%; 2018 -7%; 2017 -6%
- **Big** shift away from diesels still ongoing...
- Economy has slowed: *2-3% smaller* than would have been otherwise, post Referendum.
- Slowing growth or decline in all the big international markets

UK car production

- Production **-9%** in 2018 (output for domestic market **-16%**). 2019 so far: **-15.6%**
- April: **-45%** Oct: more shutdowns
- “considerable concern” – SMMT
- Production slowdowns, shut downs and job cuts at Vauxhall, Ford, Nissan, JLR.
- Combination of: Diesel’s demise, ‘China syndrome’ & Brexit uncertainty slowdown
- Honda and Ford closure announcements.

CAR OUTPUT – ROLLING YEAR TOTALS (millions)

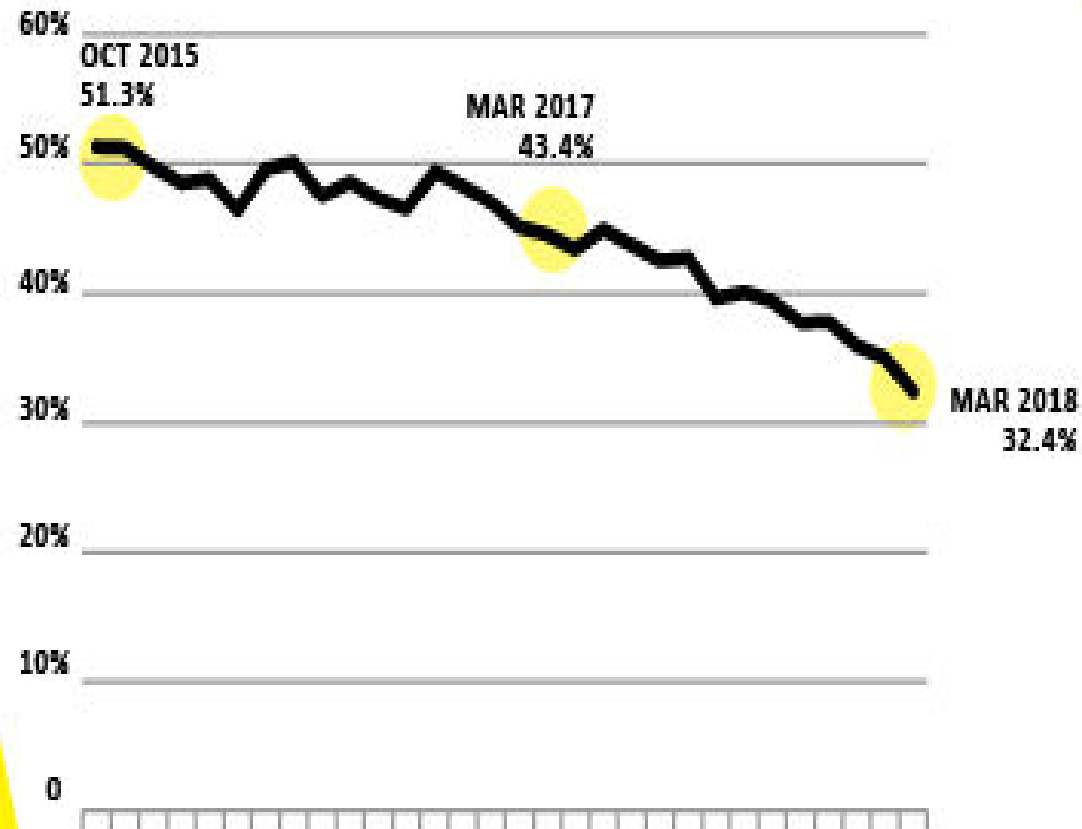


Diesel's decline UK




UK DIESEL DIVE CONTINUES UK MONTHLY DIESEL CAR SALES SHARE OCT 2015 - MAR 2018

UK
DIESEL
CAR SALES





 **die tageszeitung**

10. oktober

Das Urteil: Gericht verfügt Diesel-Fahrverbote in acht Berlin

YOU ARE LEAVING
THE DIESEL SECTOR
ВЫ ВЫЕЗЖАЕТЕ ИЗ
ДИЗЕЛЬ-СЕКТОРА
VOUS SORTEZ
DU SECTEUR DIESEL
SIE VERLASSEN DEN DIESEL SEKTOR

Photo:
Matthias Schmidt

Diesel's decline

- Diesel market share continues to fall across Europe; August 2019 **30%**.
- Aug 2019 diesel sales -8.7% compared to year earlier
- Europe: >3 years of falling diesel share (52% late 2015)
- 'Starting to level off'? But further policy action likely.
- Key market: Germany - diesel share fell **below 30%**.
- May: diesel pick up – **33%** share.
- Hamburg and Berlin have banned older diesels from parts of cities. German scrappage scheme.
- Germany: share 20% by 2020, 15% by 2025?
- 2025 European market share - as low as **15%** ?

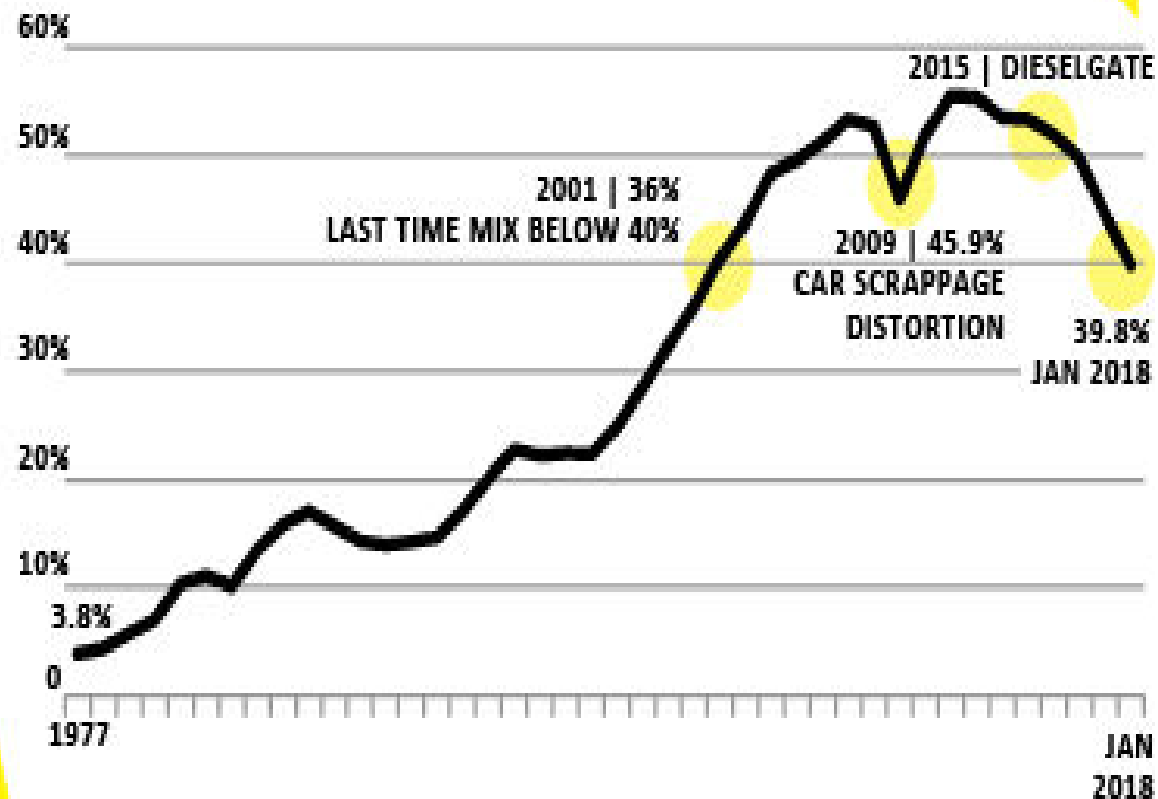
Diesel's decline - EU

AID

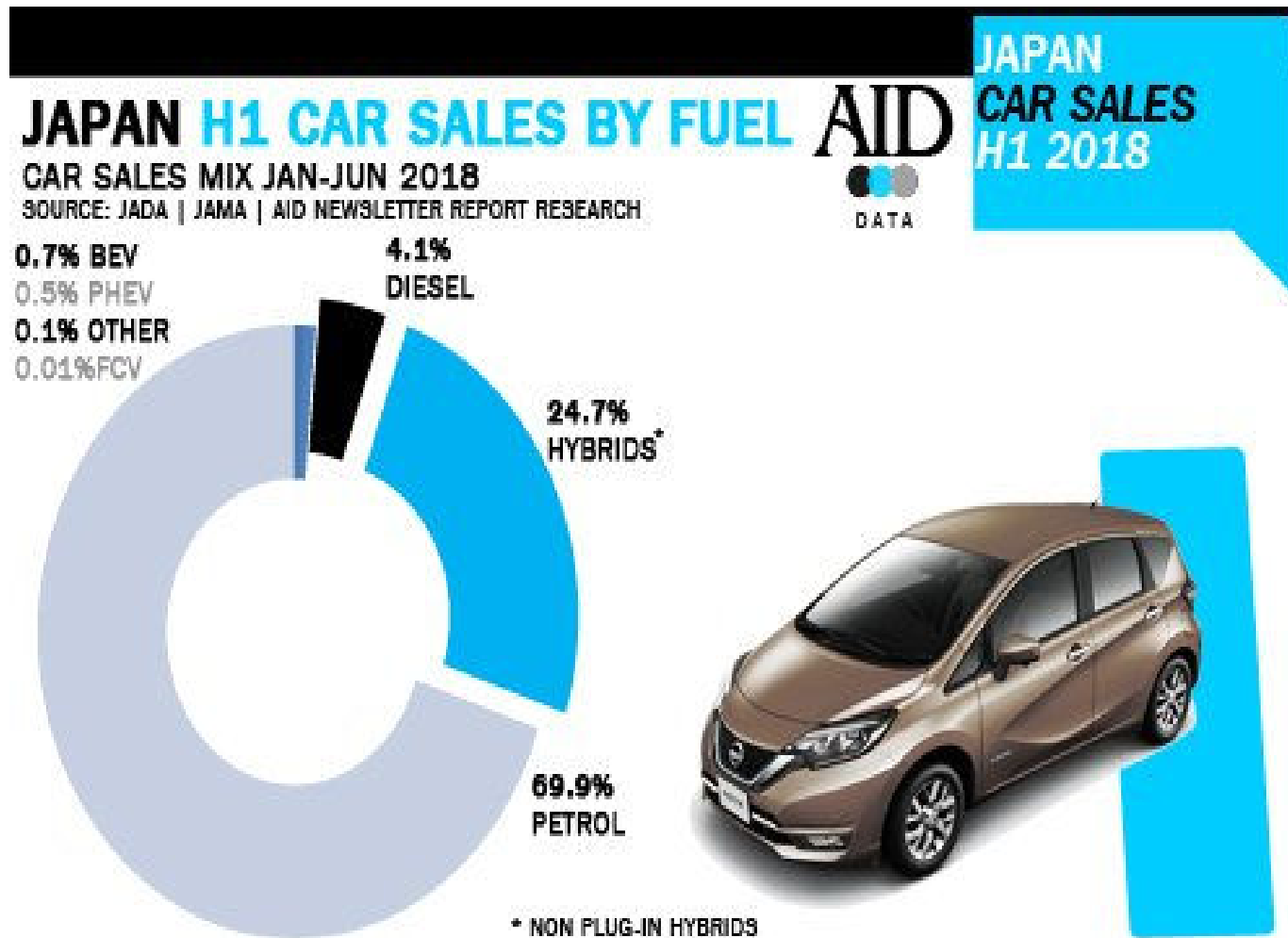


DIESELS DOWN AND BELOW 40%
W-EUROPE DIESEL SALES MIX
ANNUAL DIESEL MIX '77-'17 + JAN 2018

**W-EUROPE
DIESEL CAR
SALES TRENDS**



Diesels are not a big deal elsewhere...



Diesel's decline

“bad publicity about diesels is freaking out the public”

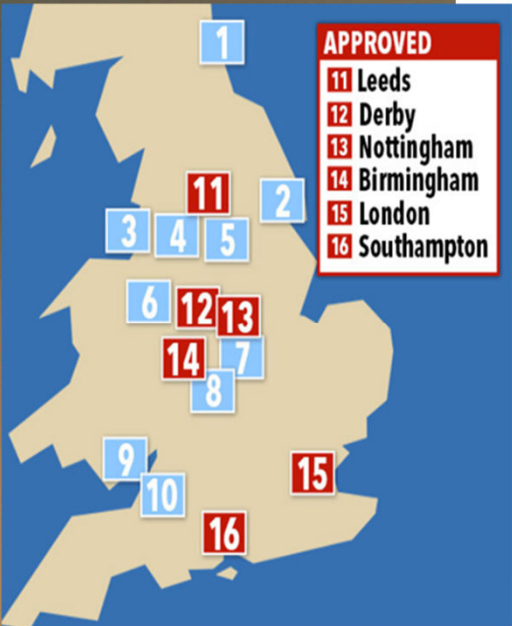
- **‘Perfect storm’** post dieselgate: consumer concerns over tighter regulation in cities*, new tax rates, resale values, tighter ‘real world’ WLTP testing, costs of new technology, plus environmental concerns...
- Auto industry has ‘collectively shot itself in the foot’: still failing to get over a convincing message on *which* diesels are clean.
- UK Govt stance v confused. Diesel tax, ban by 2040, hybrids? BEIS Select Ctte: ban to be brought forward to 2032.

Effects of declining diesels? 1

- BMW, Audi, Mercedes Benz, **JLR**, Volvo most affected
- Risk for car banks & financing companies: write off €millions on diesel residual values.
- Premium players - av.CO2 emissions will rise: increase potential for EU fines for non-compliance with 2020 emissions standards
- *“With up to 1m annual sales & emissions up to 15-20 g/km above 2020 standards... luxury [manufacturers] annual CO2 penalties could rise towards €2 bn a year,” (Morgan Stanley)*
- + need to spend heavily on technology to replace diesels. Further collaboration likely.

Effects of declining diesels? 2

- Market pull outs: Nissan, Toyota, Suzuki, Mitsubishi, Fiat Chrysler, Porsche, Volvo all phasing out passenger vehicle diesel sales.
- Peugeot: “made a mistake with pushing diesels”
- Others to follow?
- BMW has committed strongly to diesel
- Some segments still diesel dominated




Department
for Environment
Food & Rural Affairs


Department
for Transport

Clean Air Zone Framework

Principles for setting up Clean Air Zones in England

May 2017

Clean air zones

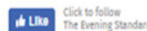
- CAZ Framework released in 2016; aim to reduce NO_x levels
- Euro 6 diesel / Euro 4 Petrol is good enough for now
- Principles: **‘One of the aims of Clean Air Zones is to support the transition to ULEVs (Ultra Low Emission Vehicles)’**
- Local authorities to explore all non-charging methods before justifying use of a charging zone.
- 5 English cities **mandated to create a CAZ by 2020; Leeds, Derby, Nottingham, Birmingham & Southampton.**
- Further 15 zones required CAZ plan, & another 7 required to develop a local action plan
- **BUT Birmingham and Leeds delayed**

Bans coming on 'ICE-only' vehicles

News > World

Paris to ban all petrol and diesel cars by 2030

CHRIS BAYNES | Thursday 12 October 2017 11:05 | 0 comments



All diesel and petrol-engined cars are to be banned

News > World

European cities announce bans on petrol and diesel cars as green initiative spreads across continent

'It's not a human right to pollute the air for

Oxford

Charlotte Beale | @CharlotteAGB | Saturday 14 October 2017

Oxford aims for world's first zero emissions zone with petrol car ban

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Environment > Climate Change

Norway to 'completely ban petrol powered cars by 2025'

'What an amazingly awesome country', Elon Musk tweeted in response to the plan

Jess Staufenberg | Saturday 4 June 2016 | 264 comments



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Ireland to ban new petrol and diesel vehicles from 2030

17 June 2019



phasing out polluting vehicles including taxis, cars and area in 2020



Hybrids?

Michael Gove leading plan to ban sale of new hybrid cars by 2040

Environment secretary favours the move but it is hotly contested

Electric vehicles

+ Add to myFT

UK to ban most hybrid cars, including Prius, from 2040

Government to issue clean-air plan prohibiting vehicles relying on traditional engines

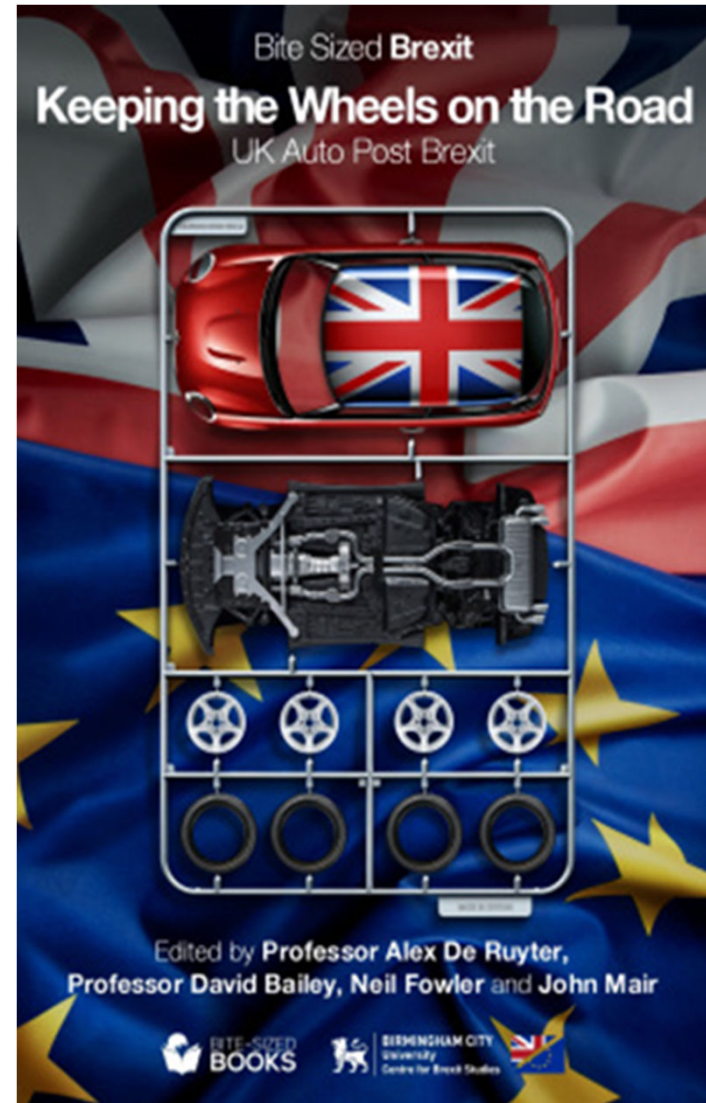
- Petrol/diesel ban from 2040 announced in 2017
- 'Road to Zero'
- Govt thought to be considering ban on hybrids (<50m on battery) by 2040.
- UK: Risks killing technology before it takes off?

Brexit

- Uncertainty: 80% decline in investment over last 3 years
- Slowed economy
- Trading arrangements + Rules of Origin
- Customs
- Skills
- Regulation
- Research networks and funding: imp for SMEs in the supply chain too

No deal?

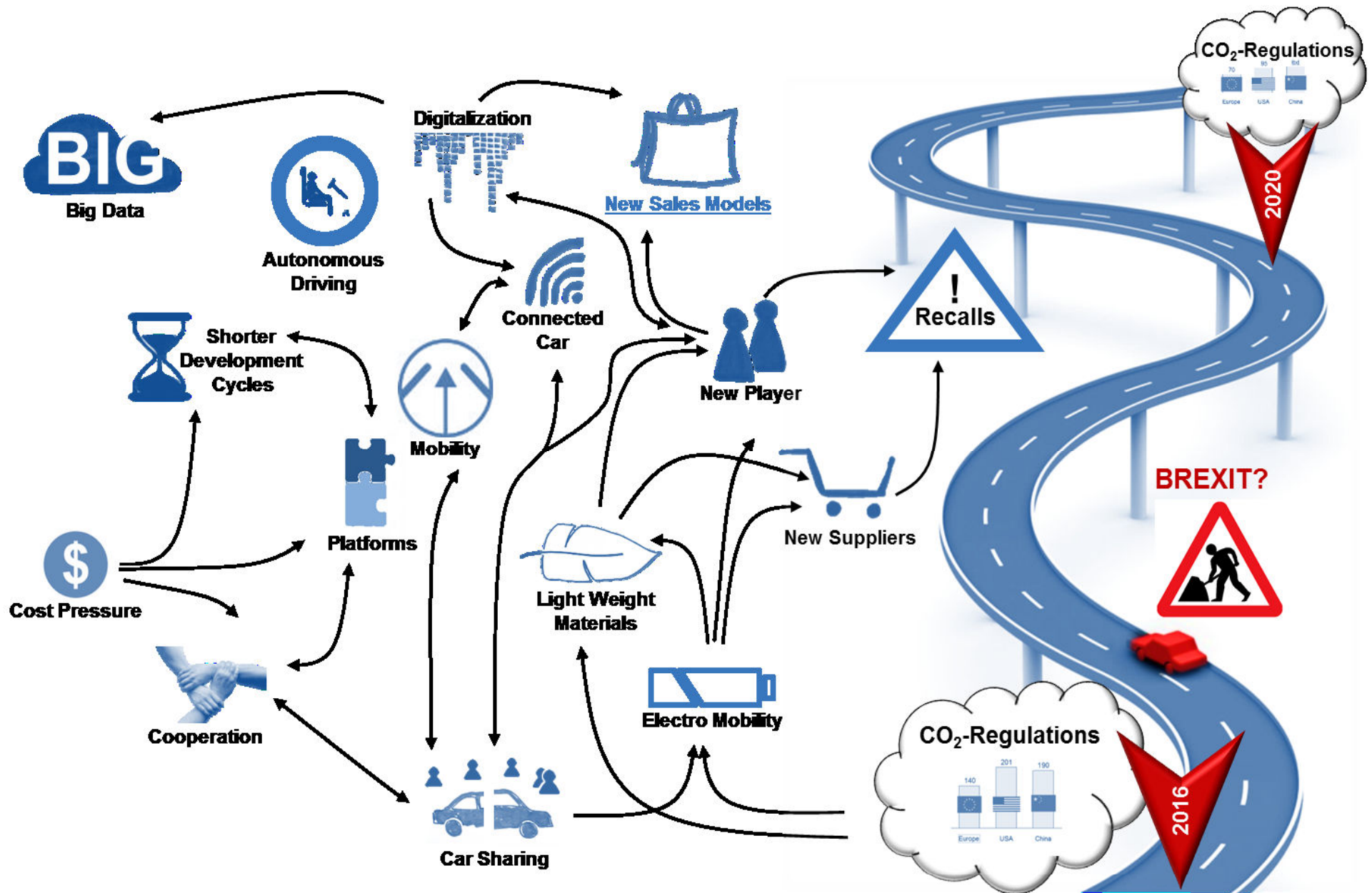
- Short term production hit:
 - 175,000 units
- Longer term:
 - as much as -500,000
 - by end of 2020s.
- Plant closures
- 10,000s of job losses



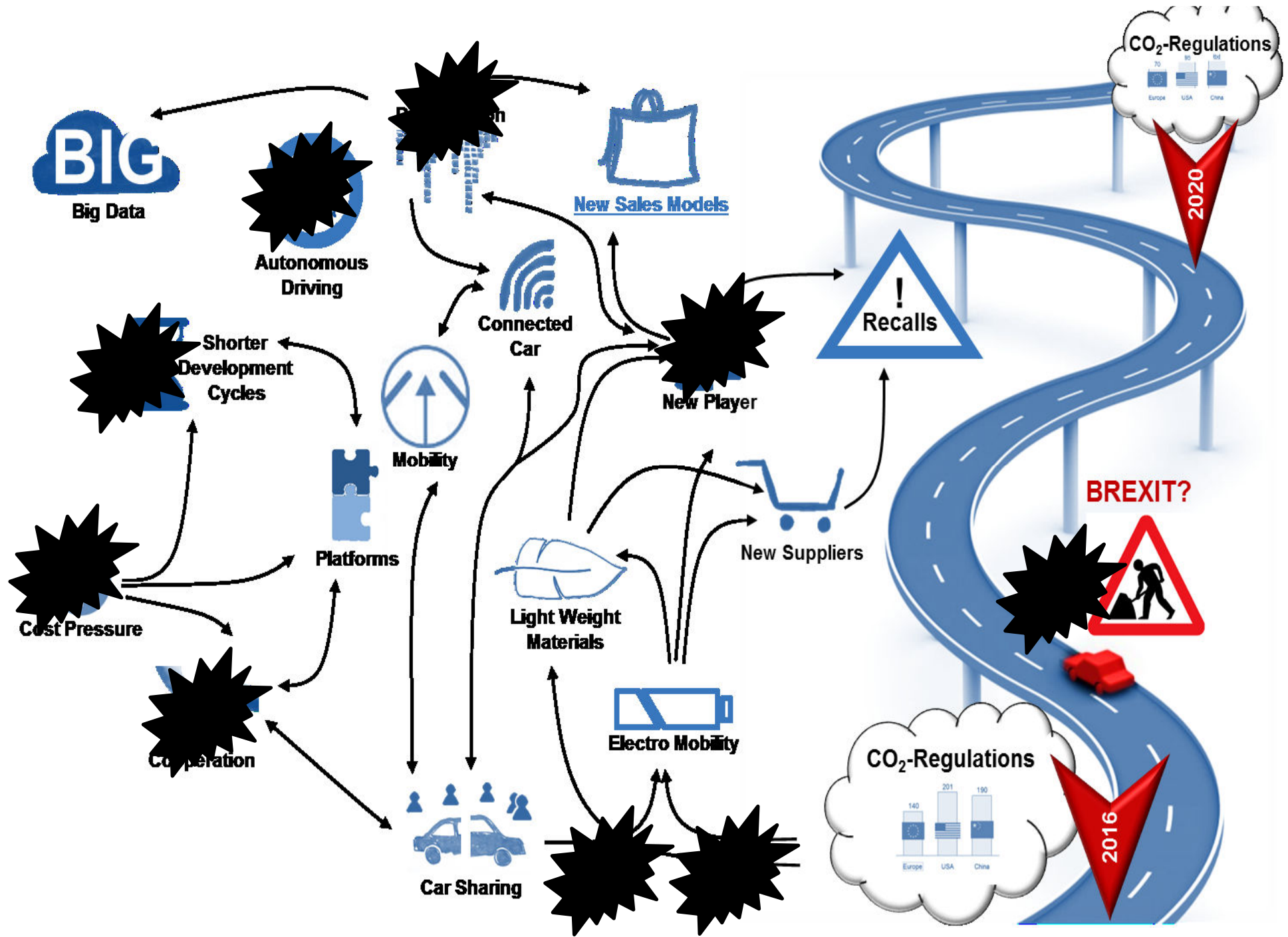
Key model upgrade decisions

	2017	2018	2019	2020	2021	2022	2023	2024
Honda	Civic						Civic	
GM (Vauxhall)					Astra		MPV	
BMW (Mini)		Countryman				Clubman	Mini	
Toyota		Corolla				Corolla		
Nissan	Leaf Juke	Note		Qashqai XTrail	Infinity Q30			
Tata (Jaguar)			XJ		F-Type	XF /XE	F-Pace	XJ / XJR
Tata (Land Rover)		Evoque	New Defender	Range Rover Sport		Discovery Sport		Evoque Discovery

Adapted from PA Consulting (2016); Bailey & De Propris (2017)

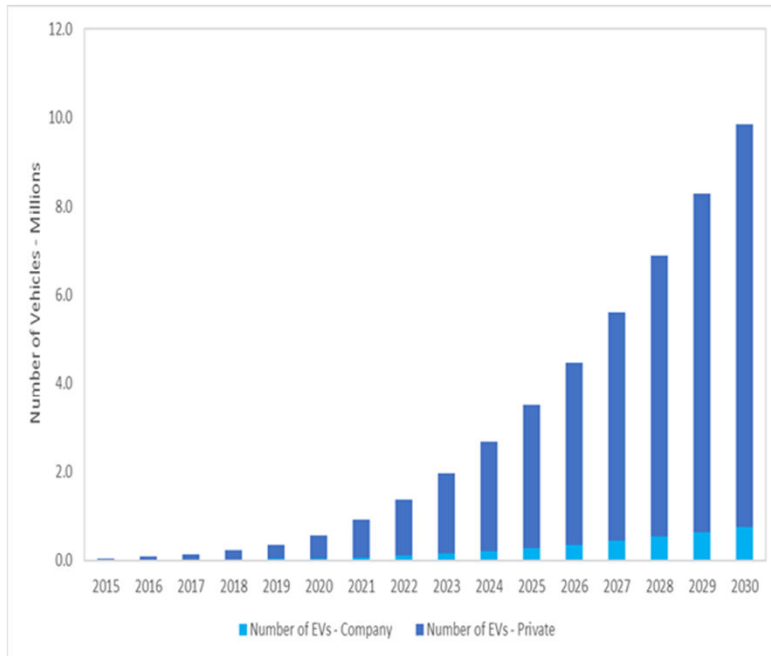


Source: **PA Consulting**, 2016. *Brexit: the impact on auto manufacturing in the UK*



New technologies

Shift to EVs *just* beginning



Committee on Climate Change 5th budget

All Volvo cars to be electric or hybrid from 2019

Landmark move as first big manufacturer says it will stop making vehicles solely powered by internal combustion engine

China to account for half of global electric vehicle sales until 2030

Mainland manufacturers are likely to lead pure EV market, which will account for 90 per cent of cars sold by 2050, says report by Bank of America Merrill Lynch

Jaguar Land Rover

Jaguar Land Rover to make only electric or hybrid cars from 2020

Carmaker follows Volvo in spelling an end for petrol or diesel-only cars, despite not making any electric vehicles at present

VW plans for electric trucks and buses, starting production next year

China's electric car output to hit 1M next year, automaker says

"The trend is definite."

News > Business > Business News

Shell launches fast-charging stations for electric vehicles

The first fast-charging stations are near London and in northern England

And...

- First competitive BEVs just arriving, rapid take up of PHEVs, and mild hybrids set to become mainstream.
- As range improves and battery cost fall to **\$150 - \$200** per kilowatt-hour over next decade, **tipping point for BEVs in early to mid 2020s**
- *Forecasts vary:* Morgan Stanley upped their estimate for **2030** to **30%**. **Others estimate 25% by 2025.** Volvo: 50%?
- 50% by 2030?
- Adoption rates will be highest in developed dense cities with tough emission regulations and consumer incentives (tax breaks, special parking and driving privileges, discounted electricity pricing...).
- EVs include a large portion of hybrid electrics: even beyond 2030, ICE technology will remain relevant.

EV sales in EU up: market share >2% 1st quarter of 2019

MS
schmidtmatthias.de

W-EUROPEAN BEV ELECTRIC PASSENGER CAR MARKET

Market remains on target to reach 300,000 annual volume

Quarterly new BEV registrations Q1 2013 - Q2 2019*

* = Q2 2019 still provisional data

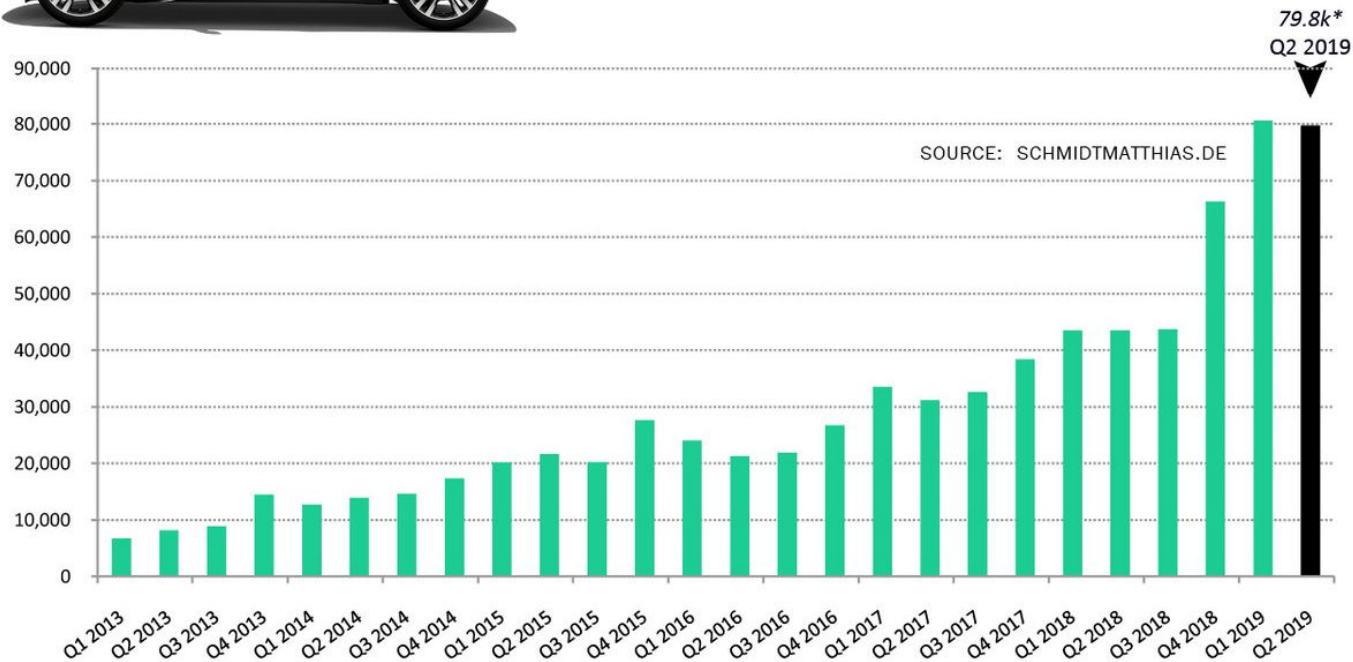
BEV = Battery Electric Vehicles

All data schmidtmatthias.de

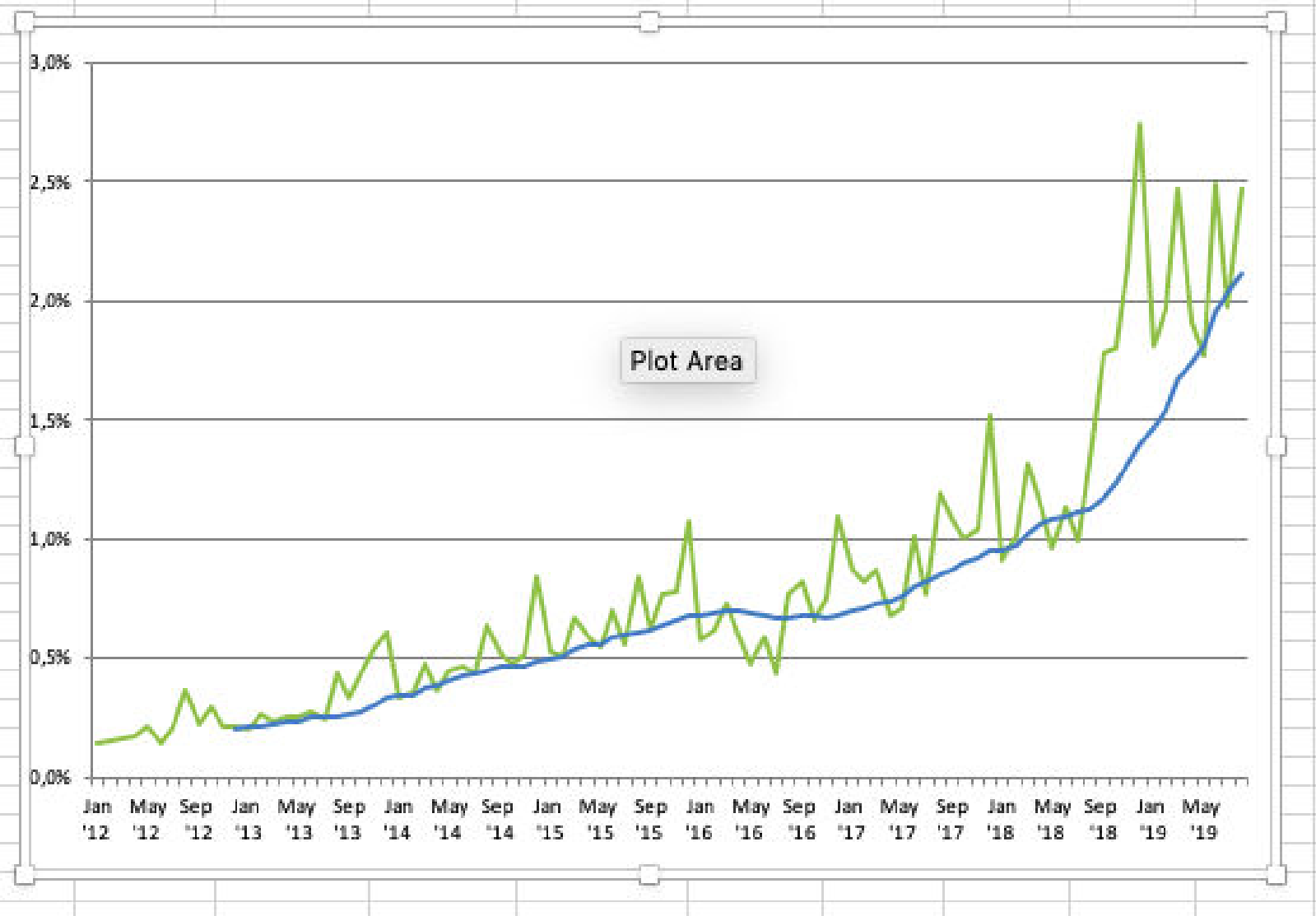


270k

12-months
running BEV
registrations
volume



BEV market penetration (W Europe incl Norway)



2020 to be 'Year Zero' for EVs?

- Tough EU fleet average CO2 emission targets arrive in 2020
- 'Super credits' come in for plug-in vehicles emitting under 50g/km of CO2
- PLUS emissions cut for auto of 35% by 2030 likely to add to EV take up: Morgan Stanley now forecasting 30% EV market share by 2030
- UK out of sync in cutting EV subsidies. UK market? UK won't count for EU targets plus subsidy cut...

Driverless cars are coming *but* full autonomy is some time away...

FINZ fastFT Driverless vehicles + Add to myFT

UK COMPANIES MARKETS OPINION WORK & CAREERS

Driverless vehicles + Add to myFT

Uber to buy 24,000 Volvo fleet

Technolo

GOOGLE TECH TRANSPORTATION

Ford and Baidu to start testing driverless cars in China

Waymo gets the green light to test fully driverless cars in California

35

Human-free driving in the Golden State

SELF-DRIVING CARS ARE HEADED TOWARD AN AI ROADBLOCK

Skeptics say full autonomy could be farther away than the industry admits

The future is here - driverless cars used on public roads in Coventry for the first time

The cars took various routes through the city centre, including past the cathedral and university, at different points of the day

FINANCIAL TIMES

UK COMPANIES MARKETS OPINION WORK & CAREERS LIFE & ARTS

UK Budget + Add to myFT

UK to allow road tests of fully driverless cars by 2019

Chancellor set to unveil plans aimed at keeping Britain ahead of rival developers



Short term: ADAS

- Fully autonomous vehicles unlikely to be available before mid 2020s.
- BUT ADAS will creep up on us & play role in preparing regulators, consumers, and firms
- **ADAS features: grow from around \$6bn now to some \$25bn by 2020, and \$50bn+ by 2025.**
- ADAS: key challenges impeding take up are pricing, consumer understanding, and safety/security issues.
- tech players and start-ups are / will play a key role.
- Regulation and consumer acceptance may represent additional hurdles for autonomous vehicles.

Longer run

- Once (major) challenges addressed, autonomous vehicles will offer great value (e.g. ability to work while commuting, or the convenience of using social media or watching movies while travelling).
- Once technological and regulatory issues have been resolved, up to **15 percent of new cars sold in 2030 could be fully autonomous (later?)**

'Intelligent Mobility'

- Autonomous features, autonomous cars
- **25 years** ahead: '90, 60, 30' benefits (Boston Consulting)
- 90% fewer accidents, 60% more throughput, 30% less fuel use and emissions
- Longer term: no need to own car in cities. Hail a driverless taxi (hence Google investment in Uber)
- 'Multimodal fusion' with public transport etc

Social and Economic impact

- Potentially huge: Morgan Stanley estimates autonomous cars could contribute **\$1.3 trillion** in annual savings to the U.S. economy, with global savings estimated at over **\$5.6 trillion**.
- In the case of the UK, KPMG/SMMT put the economic benefits here at over £50bn by 2030 and with wider adoption at over £120bn by 2040
- Losers...

Implications...

- Consumers today use their cars as *all-purpose* vehicles.
- Future: *flexibility* to choose the best solution for a specific purpose, on demand & via smartphones.
- First signs of decline of private-car ownership? US: share of young people who hold a driver's license is falling, & over 30% annual growth in car-sharing members in North America and Germany in last 5 years.
- Traditional business model of car sales will be complemented by a **range of diverse, on-demand mobility solutions.**

Implications...

- Consumers' new habits will lead to new segments of specialized vehicles designed for very specific needs.
- Shift to diverse mobility solutions: **up to one out of ten new cars sold in 2030 may be a shared vehicle**, which could reduce sales of private-use vehicles.
- → more than 30 percent of miles driven in new cars sold could be from shared mobility. **On this trajectory, one out of three new cars sold could potentially be a shared vehicle as soon as 2050.**
- Rocky Mountain Institute: **automated mobility services could capture two-thirds of the entire US mobility market in 15–20 years.**

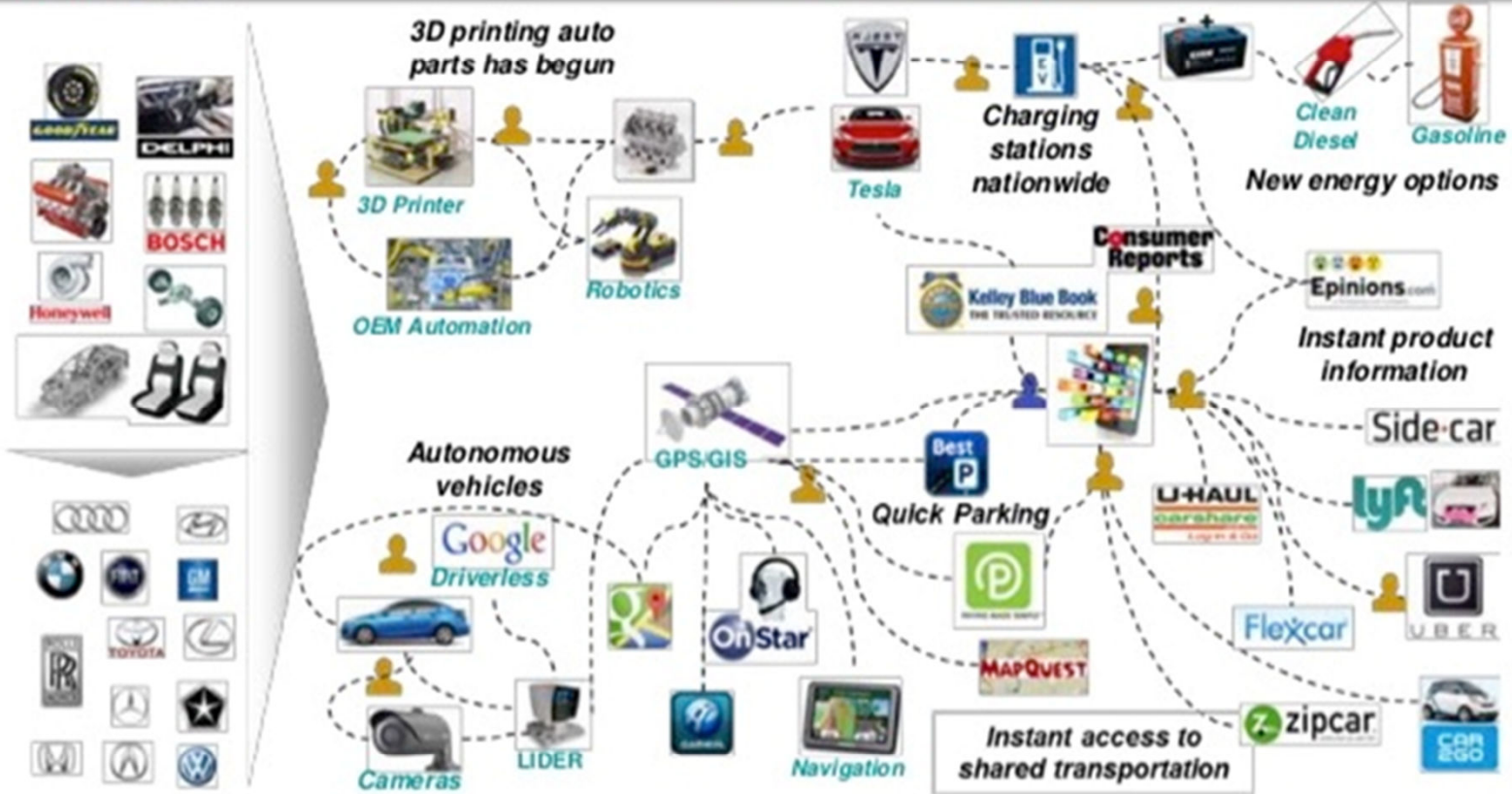
**DRIVERLESS CARS:
ON A ROAD TO
NOWHERE**



CHRISTIAN WOLMAR

Traditional Value Chain

Emerging Mobility Ecosystem



'ICE to ACE'

Implications for the Value Chain 1

→ 'fleet-based on-demand personal mobility' value chain, comprising components which will share data across the value chain, such as:

- ***Vehicle design and manufacturing*** (existing automaker, outsourced automotive manufacturer, supplier or fleet operator, operating more on an open innovation model).
- ***Operating Platform*** (existing automaker, tier 1 supplier or new entrant like Waymo, Renovo or Drive.ai)
- ***User Experience Platform provider*** (controlling the passenger's mobility experience, including in-cabin experience, including hardware, software and data).

Implications for the Value Chain 2

- ***Data services provider***: content - entertainment, traffic, mapping or weather, consumed by ACE platforms or passengers in ACE vehicles.
- ***Fleet creation***: fleet operators could specify, design and buy/lease from a specific vehicle manufacturer or lease vehicles from a 'fleet creation company', as in the airline industry. Fleet creation involves financing and insurance.
- ***Fleet operator***: firms operating and managing the fleet of ACE vehicles offering on-demand mobility services - extend to integrating on-demand with public transport and to 'Global Distribution System' firms (as in the airline industry) offering reservations to on-demand mobility services?
- ***Fleet service and maintenance provider***: servicing, maintaining and supporting fleets – specialists may provide this service.

Policy: helpful but modest so far...

- Innovate UK funding and APC support has been key
- Chancellor announced funding for new technologies such as driverless cars and electric vehicle batteries in the last but one Budget.
- But sums on offer (£270 million +) for a range of disruptive technologies including robotics, biotech and driverless cars, seem pretty small beer compared to other countries.
- The Obama government set out a **ten-year, \$4bn programme** in the United States to invest in driverless cars alone.

Some policy implications

- Brexit
- Policy on diesels
- Industrial strategy for EVs; technology, skills, supply chain AND *consumer take up* – taxes, infrastructure etc
- Govt's industrial strategy and sector deal IS a start but doesn't go nearly far enough eg on supply chains.
- Long term commitment and certainty re take up of LCVs.
- Autonomous cars: need for broader planning and debate.
- EU standards – membership was a good thing: how will this be handled?

We've been here before...

Easter morning 1900: 5th Ave, New York City. Spot the automobile.



Source: US National Archives.

Easter morning 1913: 5th Ave, New York City. Spot the horse.



Source: George Grantham Bain Collection.

Challenges & Opportunities



Challenges & Opportunities

Skyfall

Q: It always makes me feel a little melancholy. Grand old war ship, being ignominiously hauled away to scrap... The inevitability of time, don't you think? What do you see?

Bond: A bloody big ship.



Thanks for listening.

Comments, Questions welcome.

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