The European automotive sector in tough context.

The rough year 2020 may not be the worst.

Building a better working world

Content

How important is the automotive sector in EU?

What major trends disrupt the sector significantly?

What is emerging as the new context?

What can be the competitive outlook in the EU?

Probably the major short-term impact is electric mobility

The Czech drivers are ready to move on

The importance of automotive in the EU in recent years. The year 2020 is still a big question mark and recently getting worse.

The automotive industry has a **17%** share in industrial production (2018)

26 % share

Source: Eurostat, ACEA

7 % of the EU's total GDP is autom (2019)

10 % GDP

EXPORT
135.9 billion euros
IMPORT
62 billion euros
(2019)

More than **18.5 million** motor vehicles (2019)

20 % of world production

Source: ACEA

The loss of production throughout the EU for January to June 2020 is **3.6 million** of motor vehicles

(254 657 motor vehicles in CZ)

In automotive industry directly works (2018)

2.6 mil. of employees

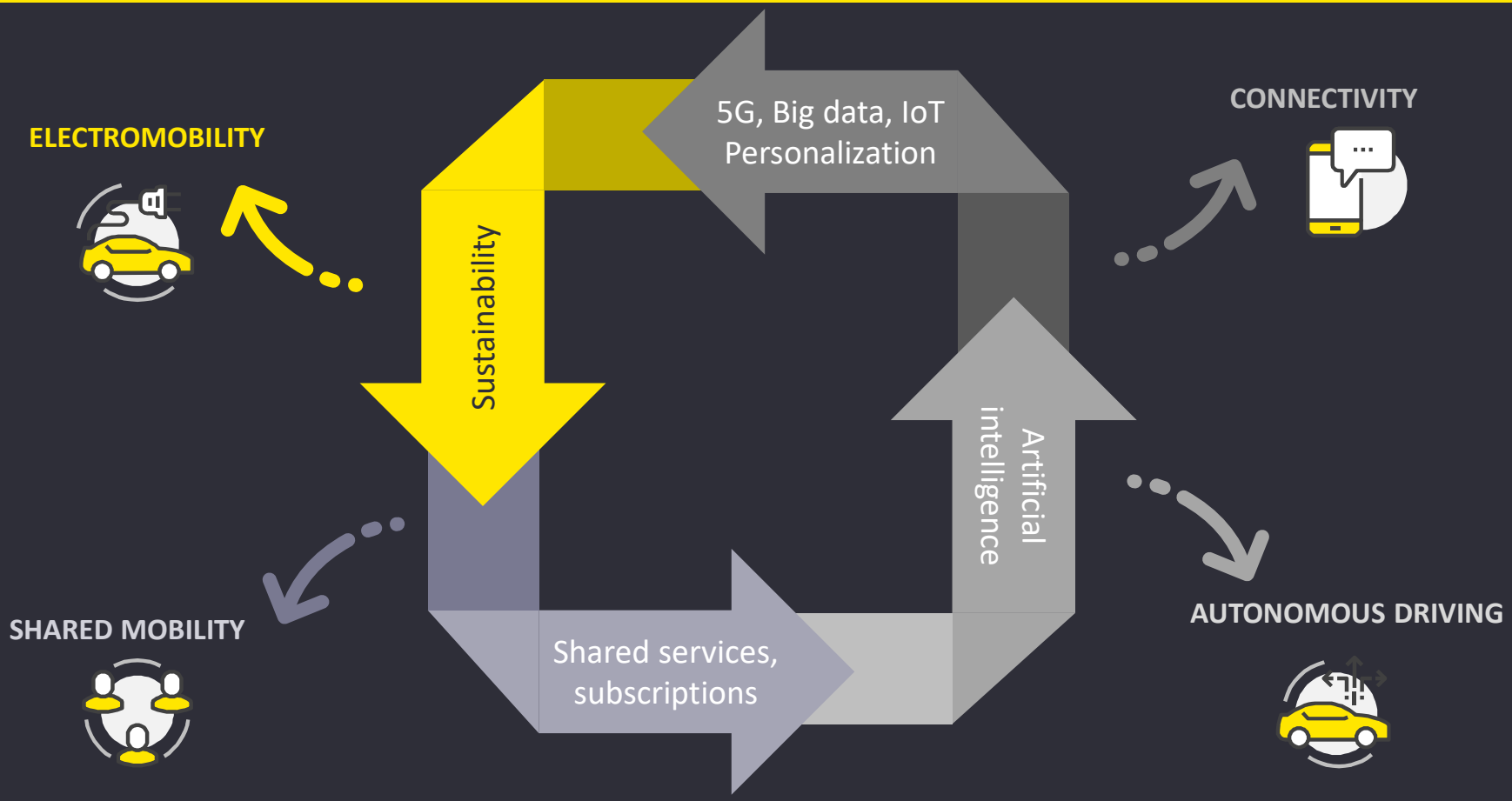
INDIRECTLY **13.8 mil. of employees**
(6.1 % of all employees)

Source: ACEA

The Automotive industry accounts for **29 %** of all R&D investments in the EU (2018)

60.9 billion EURO per year R&D invests to the automotive

We have been talking about disruption for quite some time, but now it is real... Automotive trends in the context of global deeper shifts



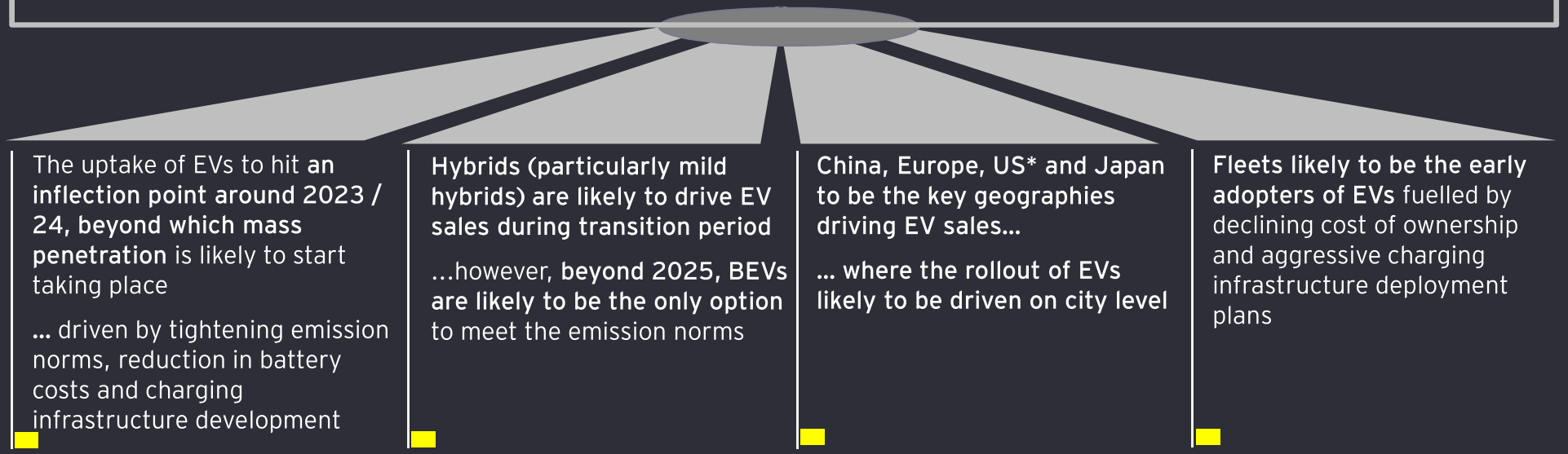
Electromobility in a nutshell

ACEA (5/11/2020) Fuel types of new cars: petrol 47.5%, hybrids 12.4%, electric 9.9% market share in the third quarter of 2020!

Key questions regarding future of the EV market …

When will EVs see mass adoption and what infrastructure and resources are required to achieve it?

Which EV technology (BEVs, hybrids, FCEVs) and geographies would dominate the global EV sales?



The uptake of EVs to hit **an inflection point around 2023 / 24, beyond which mass penetration** is likely to start taking place

… driven by tightening emission norms, reduction in battery costs and charging infrastructure development

Hybrids (particularly mild hybrids) are likely to drive EV sales during transition period

…however, **beyond 2025, BEVs are likely to be the only option** to meet the emission norms

China, Europe, US* and Japan to be the key geographies driving EV sales…

… where the rollout of EVs likely to be driven on city level

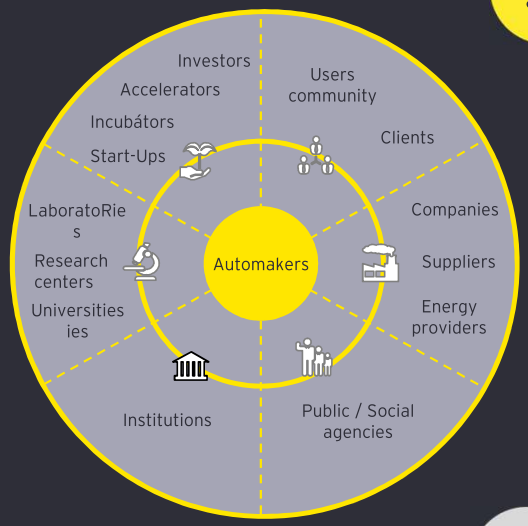
Fleets likely to be the early adopters of EVs fuelled by declining cost of ownership and aggressive charging infrastructure deployment plans

US$100/KWh Battery cost expected by 2023 / 24, tipping point for EVs

63% Forecast CAGR for 48V mild hybrid sales during 2018-28

*Subject to the outcome on the review of US fuel efficiency standards policy

Impact of electromobility on the further development of the automotive industry



- **Supply chains** — New components — Batteries — Increased importance of software
- **Less service income** — Less frequent EC service — Possible replacement during the life cycle
- **Price increases** — Large investment in EC — Mandatory safety features — Emission fines
- **Autonomous driving** — Already: Assistance systems — 10+ years: Self-driving cars
- **New financials models** — Battery rental — Shortening leases — Subscription
- **Distribution strategy change** — Direct sale to the customer — Online sales
- **Connect** — Digital services — Subscription to physical features of the vehicle
- **Longterm value Proposal** — Car sharing — Product as a service — Digital business model

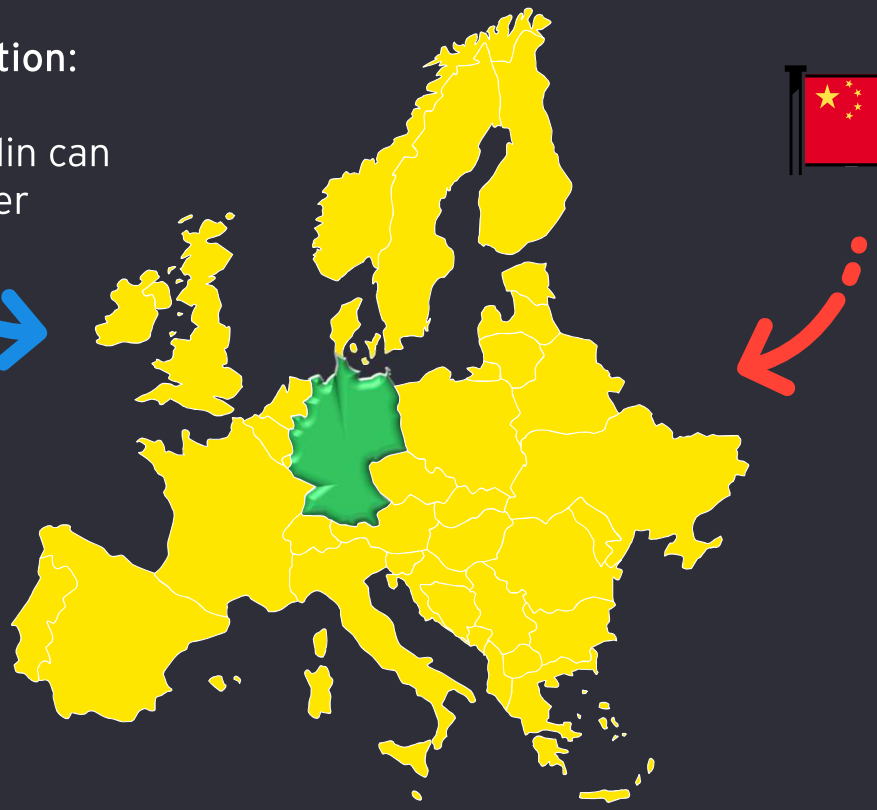
The development of e-mobility opens up two main threats to the European automotive industry

American Innovation:
Summer 2021 production in Berlin can be a game-changer

"Currently, Tesla has larger batteries because their cars are built around batteries. Tesla is two years ahead in terms of computing software architecture, as well as autonomous driving.

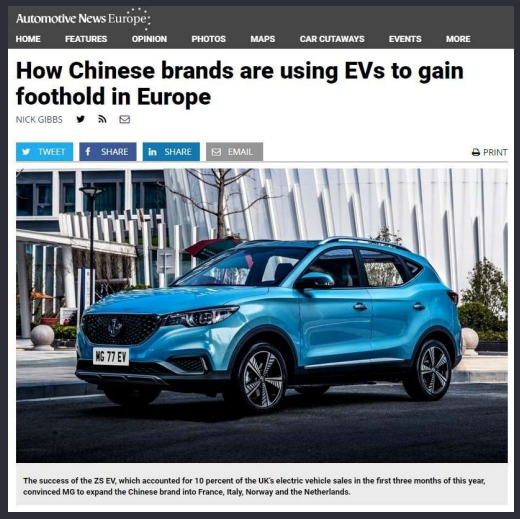
Markus Duesmann, Audi CEO

Source: Reuters



European automotive ≈ German automotive

Chinese invasion:
In electromobility, it starts all over again (Europe loses its edge)



Zdroj: Automotive News

Impact of electromobility on the EU

Threats

A drop in new car sales? New car as luxury goods

Change the demand structure of customers and car makers, external competition!

Critical components

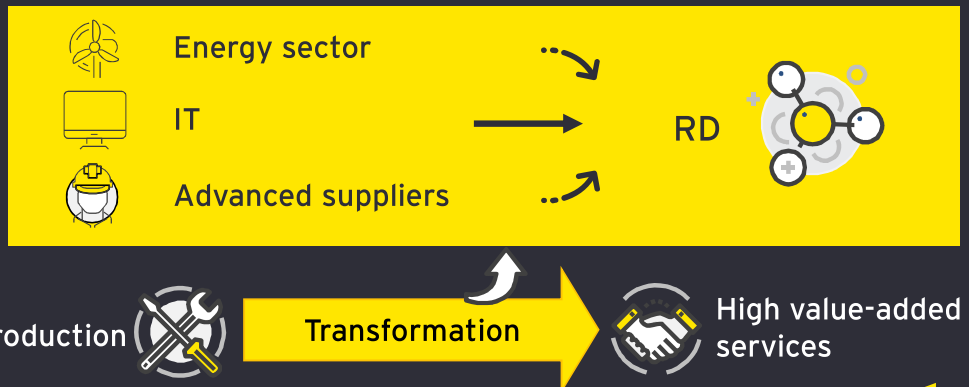
- Tank and fuel system
- Engine system
- Exhaust system
- Cooling, lubrication of motor parts and filtration of liquids
- Transmission system
- Braking system
- Heating at the air conditioning of the car
- Wheel components and bodywork

The most important obstacles to the transition to the production of components in electric vehicles

- Amount of investment
- Qualification of staff
- Reorganisation of production technology

Opportunities

- Strong tradition and ecosystem of the automotive industry
- Business potential in related sectors and segments or domestic energy production
- Strong image of European carmakers
- High investment in research and development



For additional complexity… here slowly comes the long-awaited FCEV…

…combining ecological benefits with economic perks such as range and cost per mile, FCEVs are likely to gain heightened customer interest and would be a great choice in long distances.

Faster refuelling

While EV charging takes more than 30 minutes at the most advanced charging stations, Hydrogen Vehicle could be refuelled in the matter 3 - 7 minutes

Longer range

A hydrogen vehicle can go up to 300 – 400 miles (some FCEVs go even further) on a full tank. Whereas, most electric vehicles have a range under 250 miles

Heavier payload

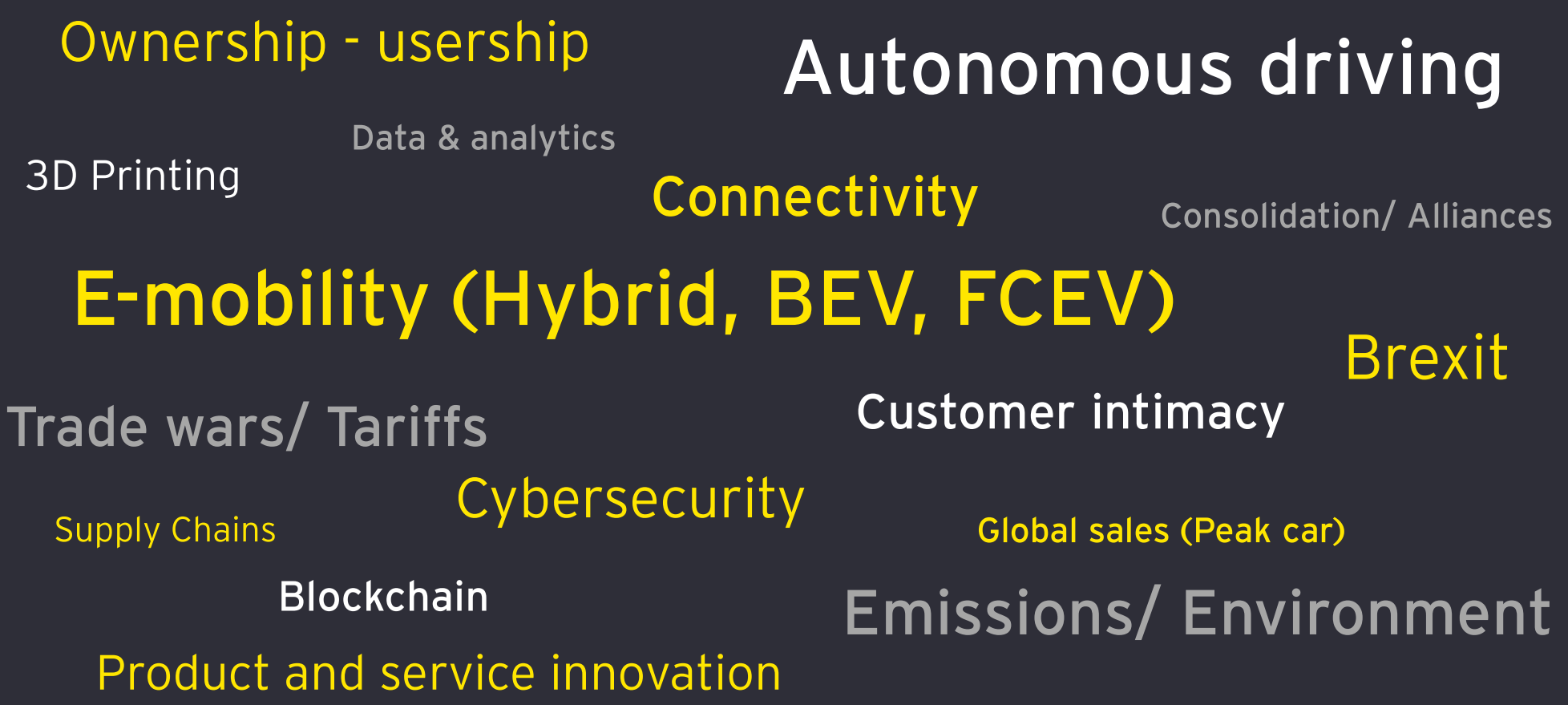
Removing the need for heavy battery systems leads to a lower vehicle weight and greater load-carrying capacity for hydrogen vehicles

Environmental benefits

Hydrogen vehicles offer zero tailpipe emissions as compared to ICE vehicles. Further, the technology is less dependent on rare elements such as Lithium

Source: Automotive World, HIS Markit, Wards Intelligence

Key themes


Ownership - usership
Autonomous driving
Data & analytics
3D Printing
Connectivity
Consolidation/ Alliances
E-mobility (Hybrid, BEV, FCEV)
Brexit
Trade wars/ Tariffs
Customer intimacy
Cybersecurity
Supply Chains
Global sales (Peak car)
Blockchain
Emissions/ Environment
Product and service innovation

Has anyone asked what the (Czech/CEE) Customer wants?

Survey regularly has carried out **since 2016** in the Czech Republic

In 2019:

In 2020:

Introduction to the fifth year of the survey:

September - October 2020

32 questions in the form of an online questionnaire

Representative sample of 513 active drivers
Aged **20 – 60 years** (Czech Republic)

First publication of the results: during the first half of October 2020 for our clients

Official publication: at an official press conference 19.10.2020

What drive do Czech drivers prefer?

What kind of drive does my current car have?

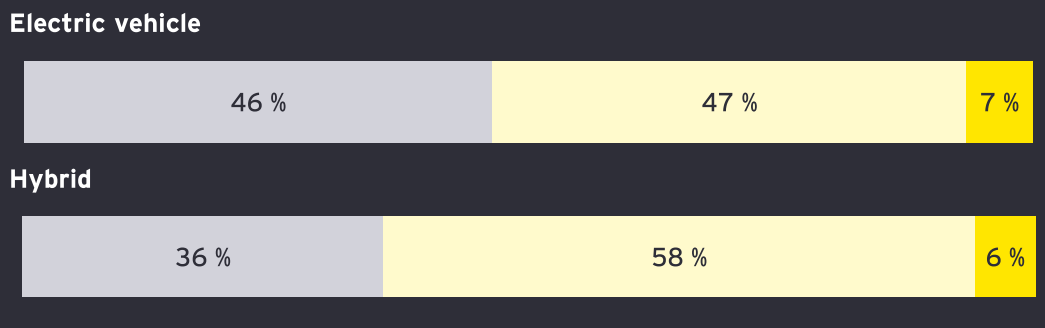
Petrol	Diesel	Hybrid	Electric	GAS-operated (CNG/LPG)
63 %	34 %	0,4 %	0,4 %	2 %

What kind of drive will my next car have?

Petrol	Diesel	Hybrid	Electric	GAS-operated (CNG/LPG)	Not yet decided
50 %	17 %	6 %	2 %	2 %	22 %
(43 %)*	(18 %)*	(5 %)*	(3 %)*	(4 %)*	(27 %)*

*) Respondents' response in 2019.

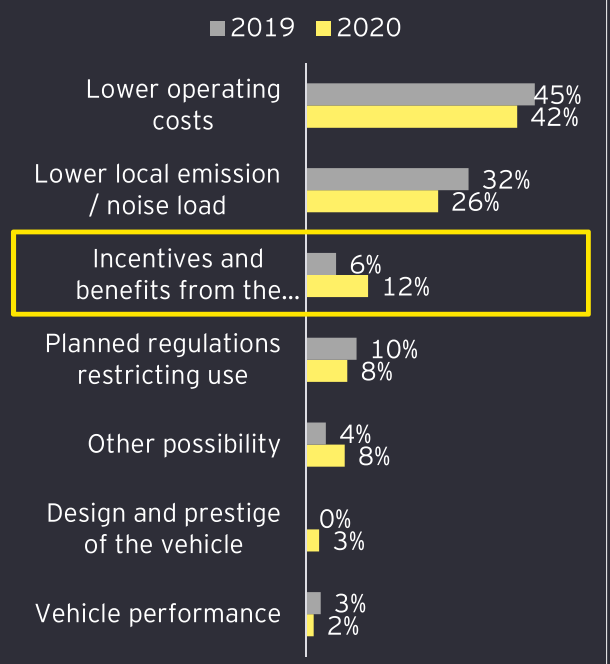
To what extent would you consider buying an electric car in the future or a hybrid?



How to increase interest in electromobility?

Reasons FOR

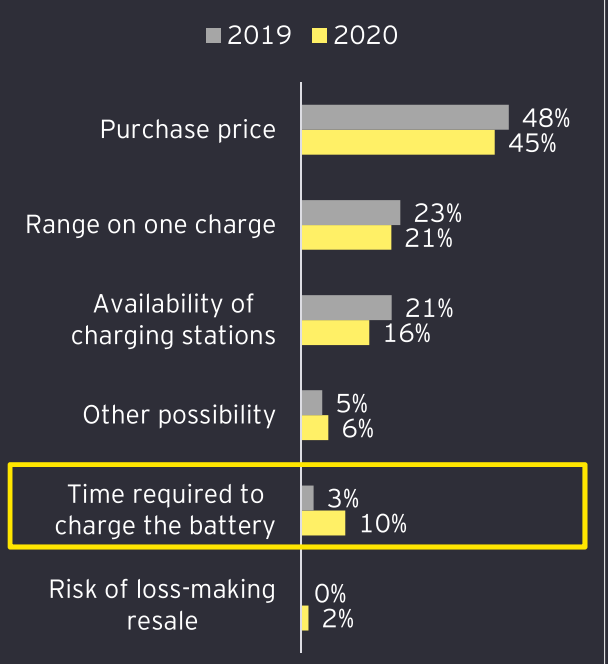
Why are you particularly interested in buying an electric car or hybrid?



*Answers in 2019 for electric car only

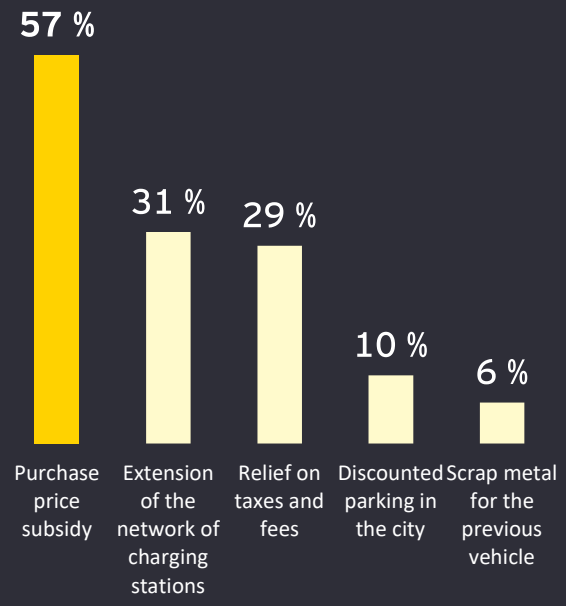
Reasons AGAINST

What discourages me from buying an electric car?



Increase interest

What measures would the state take to increase your interest in an electric car?



Main thesis and your questions

7 %
of the total GDP of the European Union accounts for automotive (2019)

The automotive industry indirectly employs
6.1 %
all employees (2018)

The automotive industry represents **29 %** of all R&D investments in the EU (2018)

Electromobility **will fundamentally change the whole sector** and distribution of value / profit

Electromobility development is **significantly related to incentives**

Czech drivers are **ready** to use electric vehicles, but they **must be cheaper**