

# Key Auto Trends



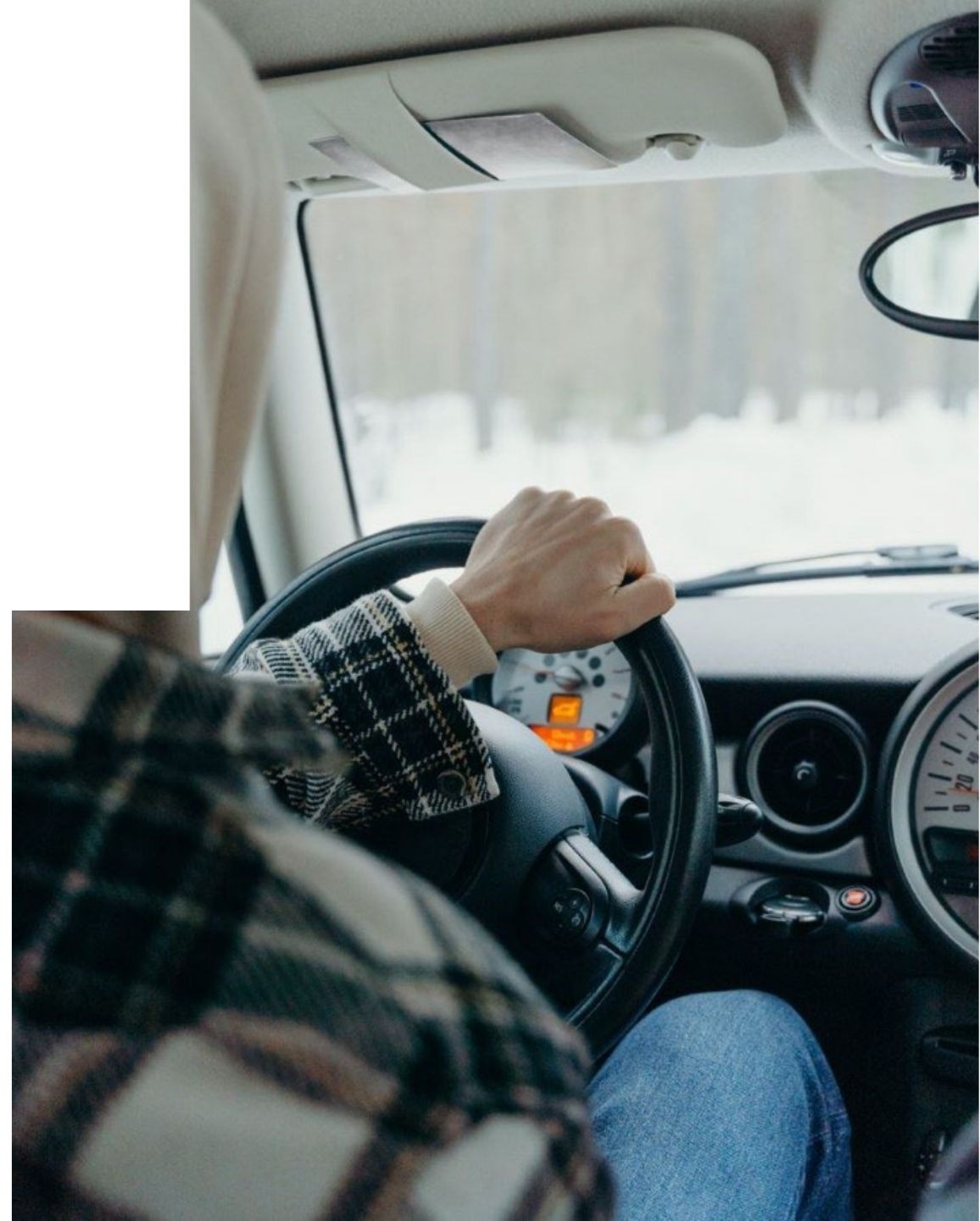
## Intro

Auto Sector Insight

# THE ROAD AHEAD 2.0

The auto sector is going through a period of rapid change which will likely redefine its very fundamentals. As a key market participant in the Nordic auto finance sector, Santander adds value to partnerships and other key relationships by offering the right finance solutions and keeping up with the market changes.

The aim of this insight report is to provide an update on key auto trends, both on a Nordic and a global level – together with Santander's view both on the trend itself as well as what these changes could mean for financing.



# Market Overview in 2021

Market definitions:

New car sales = New + imported personal cars & light commercial vehicles

EVs = BEVs/all-electric vehicles

## Norway

New Car & LCVs:  
203 725

17,5%  
vs. 2020

New EV Cars &  
LCVs:  
113 707

48,1 %  
vs. 2020

EV MARKET SHARE: 55,8%

## Denmark

New Car & LCVs:  
218 241

-3,9%  
vs. 2020

New EV Cars &  
LCVs:  
24 902

79,9 %  
vs. 2020

EV MARKET SHARE 11,41%

## Sweden

New Car & LCVs:  
337 449

4,5%  
vs. 2020

New EV Cars &  
LCVs:  
57 468

107%  
vs. 2020

EV MARKET SHARE 17,03%

## Finland

New Car & LCVs:  
107 965

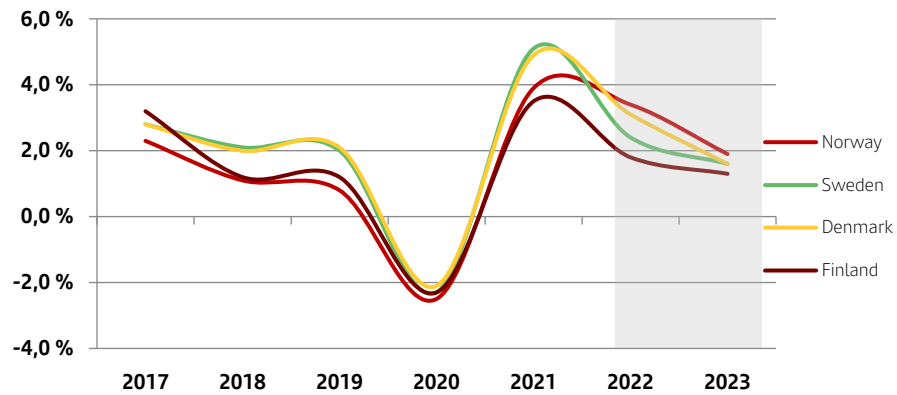
0,7%  
vs. 2020

New EV Cars &  
LCVs:  
10 150

139 %  
vs. 2020

EV MARKET SHARE 9,4%

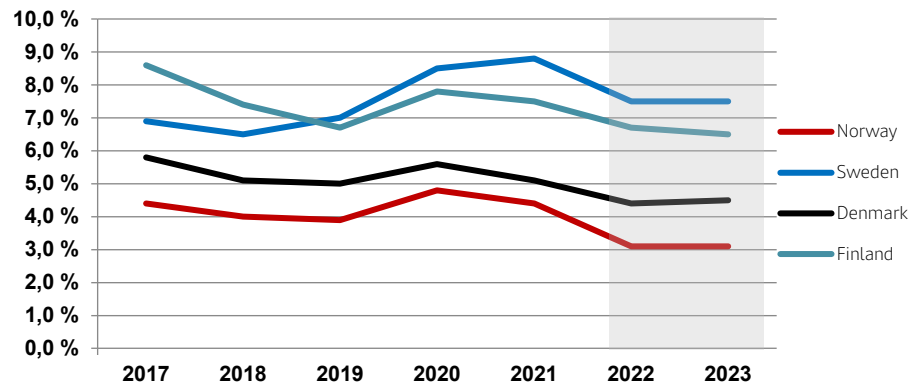
## GDP Growth (YoY)



## Economic growth rates slowing due to inflation and labour shortages.

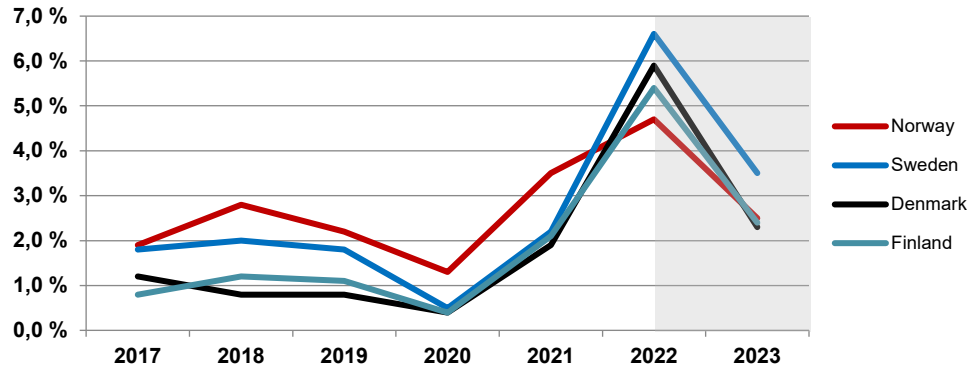
- The Nordic economies are still facing pressure from high inflation and rapidly increasing interest rates.
- GDP Growth forecasts for 2022 are still looking very promising across the Nordic region but have been adjusted downwards for the coming years.

## Unemployment (YoY)

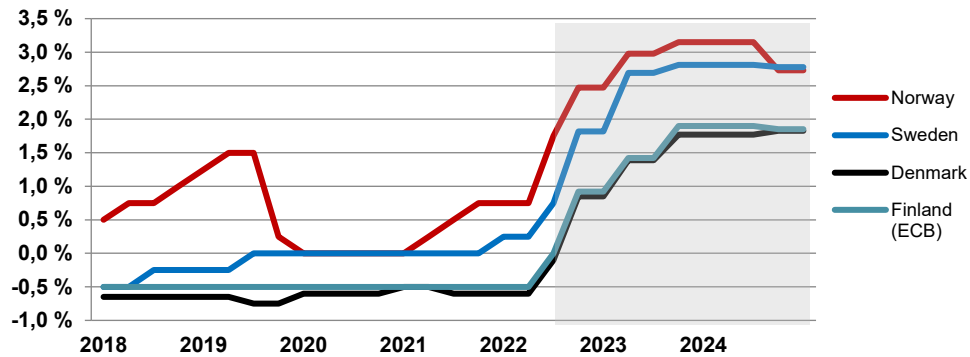


- Fully-recovered labor markets have resulted in many branches overheating as companies are reporting labor shortages.
- High-capacity utilization and labor shortages equal a tight labor market for the near to medium term.

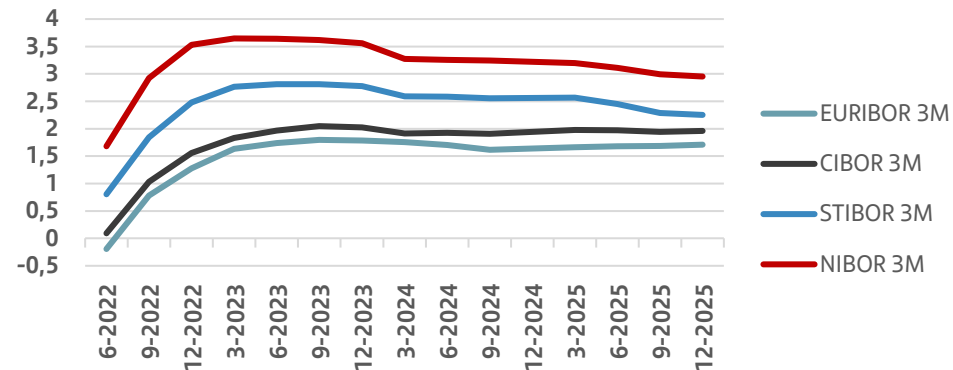
### Inflation (YoY)



### Central Bank Rates



### Forward curves



Return to growth and rising inflation puts upward pressure on interest rates and, accordingly, this impact is reflected in forward curves across all markets.

- Prices of energy and food are the main inflationary drivers in the Nordic region. Increasing service inflation and high freight costs also contribute considerably to the overall inflation.
- Although the increase in inflation is broadly based, it is too large due to global events.
- The surge in inflation continues post-summer break and are driving rate paths up in the Nordic region.
- Both the European, Norwegian, Swedish and Danish Central Banks are expected to hike the interest rates even further in September.

# Trend Summary

1

## SUPPLY AND DEMAND

SHORTAGE, INFLATION, AND ECONOMIC DEVELOPMENT

2

## FUEL REVOLUTION

ALTERNATIVE FUELS, OEM PLANS, RECYCLING AND TOTAL LIFE POLLUTION

3

## LEGISLATION AND TAXATION

REGULATIONS, CONNECTED CARS, FEES AND TAXES

4

## PLAYERS TAKING NEW POSITIONS

OEMS CLOSER TO VALUE CHAIN, LEASE TERMS CHANGES, NEW PLAYERS



# Supply & Demand – Our point of view

An aerial photograph of a large port area at dusk. The foreground is filled with rows of colorful shipping containers (red, blue, green, orange) and yellow gantry cranes. A wide river or canal flows through the middle ground, with several boats visible. In the background, a dense city skyline with numerous skyscrapers is visible under a twilight sky with soft clouds.

## “Worldwide disruption”

The disruption in supply and demand caused by the pandemic has been accentuated by the political and military conflicts arising in 2022. This climate of uncertainty has translated into severe inflation in the car industry and a continuation of the shortage of semiconductors and other key raw materials.

OEMs race to find solutions to these challenges while at the same time investigating innovations on materials for battery production that both lower costs and reduce the dependence on critical elements such as lithium, cobalt, and rare earth.

Recession, a continuation of inflation, increased cost of funding, and a potential armed conflict between China and Taiwan are all potential stones on the path to recovery.

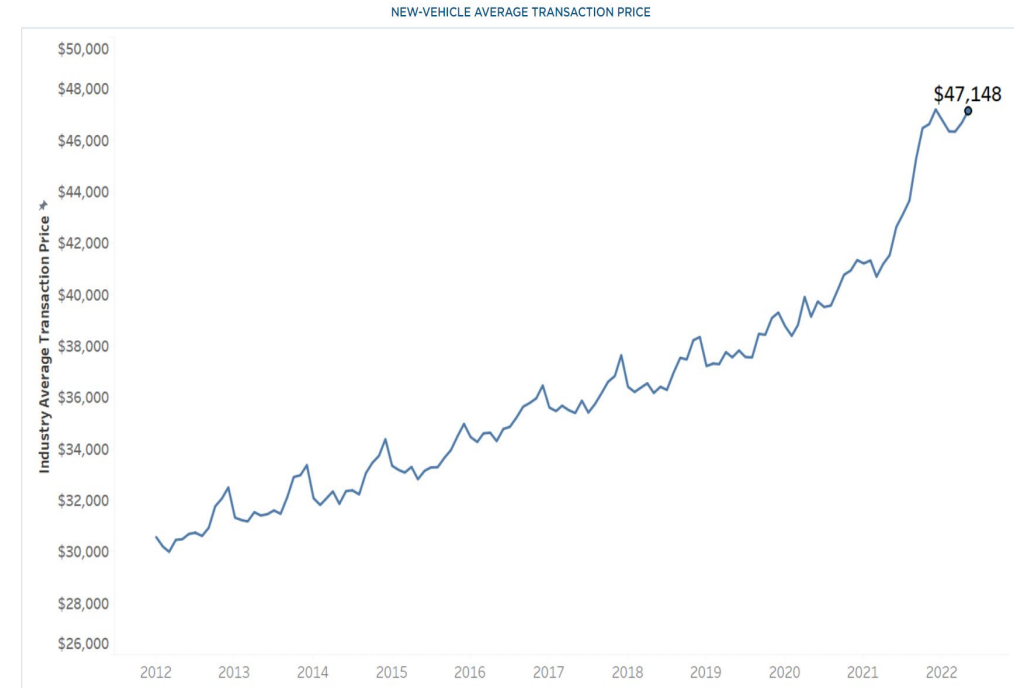
# 01

## 1.1 Supply & Demand – Price and demand of cars

### Shortage, demand, and inflation on new and used cars

The shortage of key components and the disruption in new car production has led to significant wait times for new cars. This has shifted the demand toward used cars, thus driving prices up worldwide. In Finland, As many as half of the used electric cars imported from Germany in 2022 have been sold in advance, without the customer seeing it.<sup>3</sup> The most in-demand models have appreciated even as they sit on driveways, often seeing slightly used cars being more expensive than brand new ones due to their immediate availability.

The inflation and scarcity of cars have also driven an increase in car-hire rates, more than tripling since 2019 in tourist-heavy countries like Spain.<sup>1</sup> Rental companies sold much of their stock as demand collapsed during the pandemic. Now that customers are back, rebuilding their fleet is expensive due to car inflation and shortage, and price increases are now passed on to customers.<sup>4</sup>



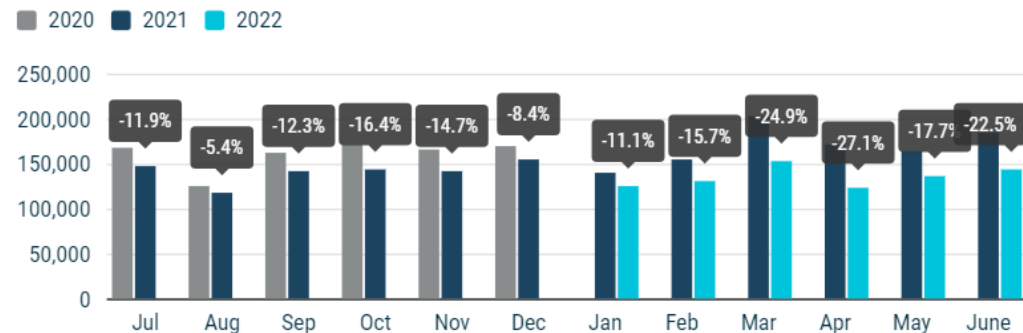


## 1.1 Supply & Demand – Price and demand of cars

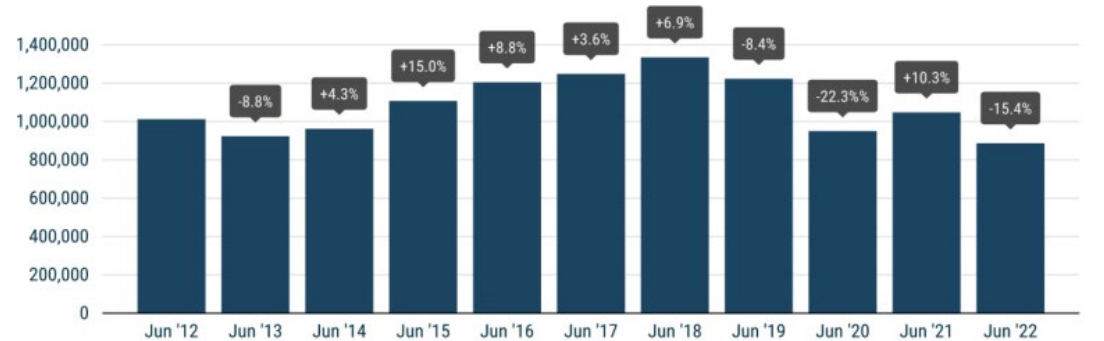
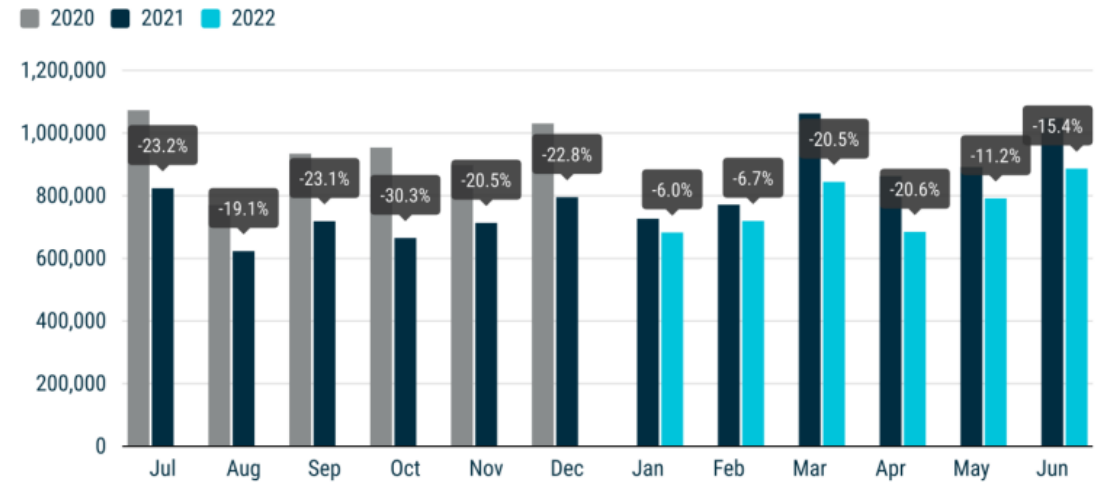
### Global Sales

Global sales were thought to have bottomed out in 2020 at 68.6 million cars because of the global economic lockdown inspired by fears over the coronavirus pandemic. However, in May 2022, Germany's Center for Automotive Research forecasted global sales in 2022 to fall to 67.6 million cars from 71.3 million cars in 2021.<sup>1</sup>

New commercial vehicle registrations in the EU

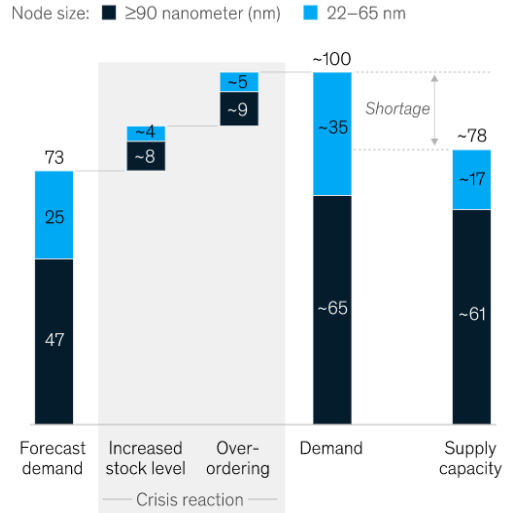


New Passenger car registrations in the EU: -14.0% first half of 2022; -15.4% in June

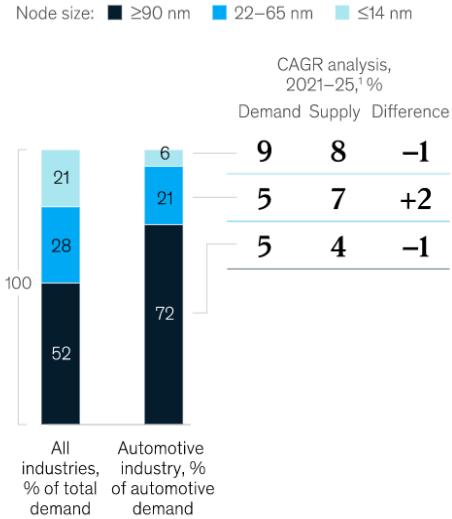


## 1.2 Supply & Demand – Semiconductor shortage

Global semiconductor demand and supply, 2022, 300-millimeter equivalent, million wafers per year



Share of global semiconductor demand, by node size, 2021, %



Note: Figures may not sum, because of rounding.  
<sup>1</sup>Supply is installed capacity in million 300-millimeter-equivalent wafers; demand foundation is conversion of million square inches into million 300-millimeter-equivalent wafers.  
 Source: Omdia Semiconductor Silicon Demand Forecast Tool (Q1 2022); SEMI WFF (Mar 2022); McKinsey analysis

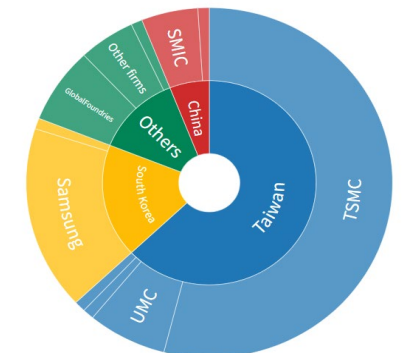
The semiconductor industry is heavily clustered around Taiwan and South Korea, which together accounted for more than 80% of the market share in 2020 and 2021.<sup>1</sup> As of August 2022, a single Taiwanese company, TSMC, produces 53% of the world's chips<sup>3</sup>, thus making the island a strategic industrial and geopolitical enclave. The recent geopolitical tensions between China and Taiwan fuel the uncertainty regarding the prospects of a recovery of the industry.<sup>5</sup>

### Semiconductor Shortage

A key reason for the new car shortage worldwide has been the scarcity of semiconductors. Automakers reduced their chip orders at the beginning of the pandemic<sup>4</sup>, while at the same time the rise of work from home increased the demand for PCs and tablets. As the automotive market recovered faster than anticipated towards the end of 2020, the orders piled up, but the supply chain was empty, leading to long delays and shortages.

As of August 2022, tech giant Intel expects the shortage to continue until at least 2024, and although production for the computing and mobile market may eventually align with demand, the automotive industry will be among the most affected sectors.<sup>5</sup>

Semiconductor contract manufacturers by market share  
 Total foundry revenue stood at \$85.13 billion in 2020



### 1.3 Supply & Demand – Supply chain challenge

These graphs aim to provide a quantitative snapshot of the supply chain context in recent years. Port congestion, lack of truck drivers, increased freight rates, and booming cardboard prices have all contributed to all-time highs in the NY Fed Global Supply Chain Pressure Index. These disruptions have resulted in vehicle problems reaching a record high in the 36-year history of the JD Power Initial Quality Study - compared with 2021 results, the industry experienced an 11% increase in problems per 100 vehicles. In some cases, new vehicles have been shipped without some features installed, adding to customers' dissatisfaction.

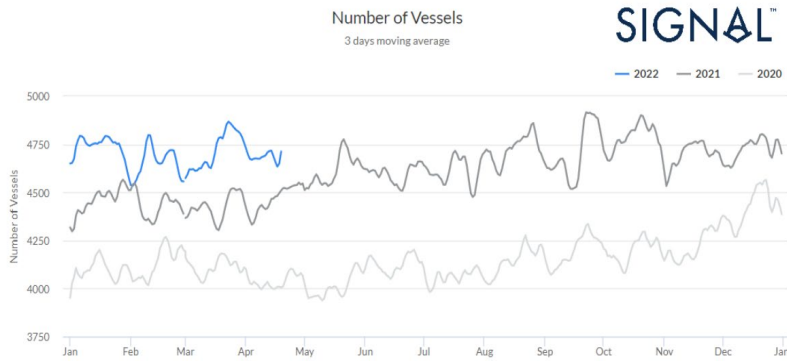
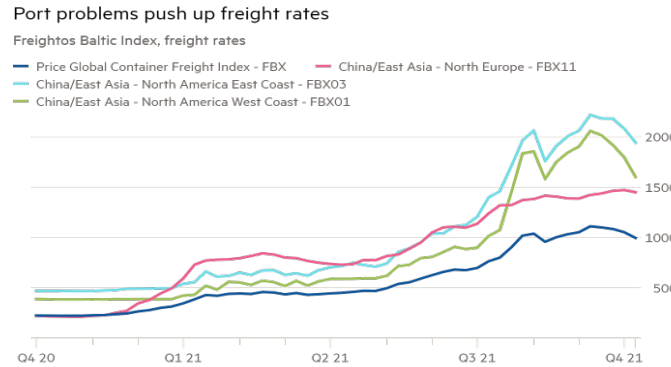


Image 1 | Source: The Signal Ocean Platform, Port Congestion, Worldwide Ports, 3 days moving average, Years 2022-2021-2020



Source: Freightos Limited © FT

#### Cardboard prices reach record highs

Producer Price Index by Industry: Corrugated and solid fiber box manufacturing



Chart: Matt Leonard / Supply Chain Dive - Source: Bureau of Labor Statistics - Created with Datawrapper

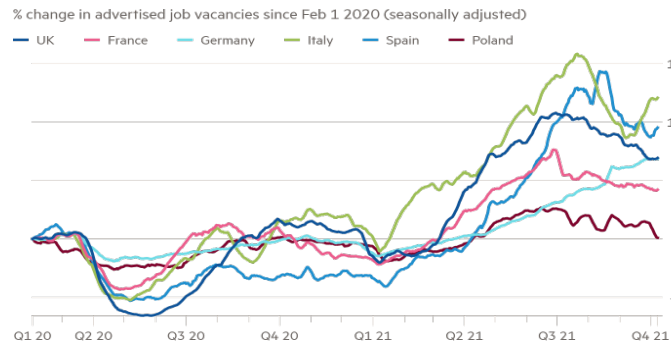
#### Number of waiting container vessels



As of 15:00 GMT on Oct 13

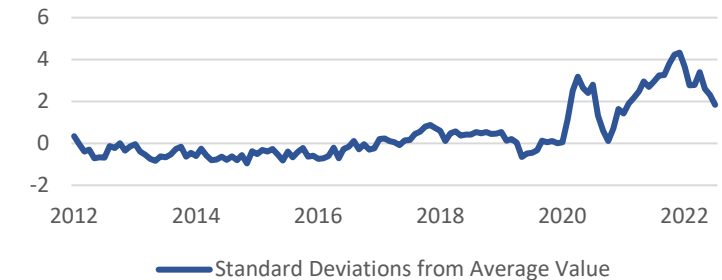
Source: Seaexplorer/Kuehne+Nagel © FT

#### Truck drivers needed



Source: Indeed © FT

#### Global Supply Chain Pressure Index (GSCPI): Std. Dev. from Avg Value<sup>2</sup>



— Standard Deviations from Average Value

1 - <https://www.thesignalgroup.com/newsroom/port-congestion-a-review-of-the-number-of-dry-bulk-vessels-in-the-q1-2022>  
 2 - <https://www.newyorkfed.org/research/policy/gscpi#/interactive>  
 3 - <https://www.jdpower.com/business/press-releases/2022-us-initial-quality-study-iqs>  
 4 - <https://www.ft.com/content/24583d1b-7c65-40ec-8516-711c54495163>  
 5 - <https://www.ft.com/content/e8ca2a08-308c-4324-8ed2-d788b074aa6c>  
 6 - <https://www.supplychaindive.com/news/cardboard-prices-e-commerce-corrugated-box-paper/597879/>

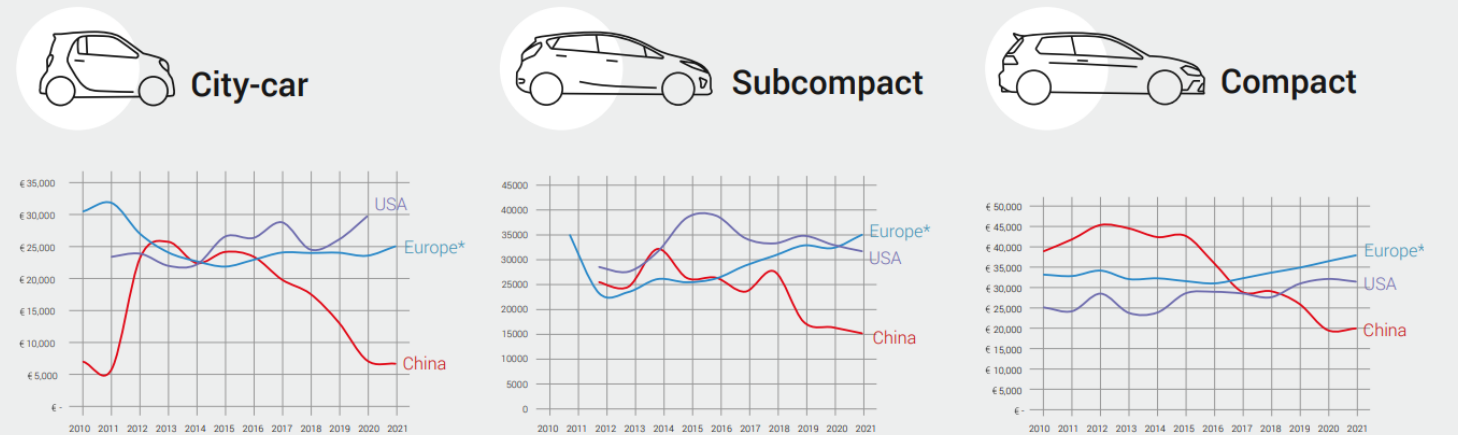
### 1.3 Supply & Demand – Supply chain challenge

#### Technology advancements bringing prices down

Technology advancements have caused a reduction in BEV battery prices throughout the last decade. Recent developments in rising commodity prices and general price levels are showing a potential reversal and increase in price.

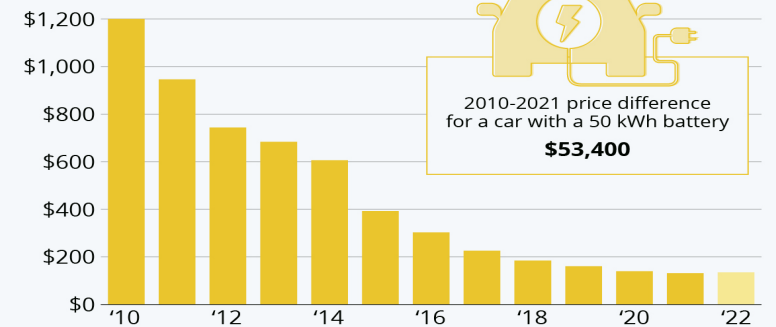
Although the drop in BEV prices has been very noticeable across all segments in China and in the subcompact segment in the USA, the drop in battery prices hasn't been reflected in vehicle prices across Europe and in other American segments.

Volume Weighted Average Retail Price of BEV sold/registered



#### Rising Commodity Prices Slow EV Battery Price Drop

Volume-weighted average price of battery packs for electric vehicles (\$ per kWh)\*



\* all prices in real 2021 dollars, except for 2022 forecast, which is given in nominal terms  
Sources: BloombergNEF

## 1.4 Supply & Demand – Impact of financing

The Supply and Demand challenges impact finance companies in mixed ways. Reduced supply leads to fewer cars to finance, however, the price increases lead to higher finance amounts. In line with the increase in interest rates (and inflation), finance companies are also facing rising cost of their services.

In a macro reality that forecasts slower GDP growth, lower consumer confidence, and significant inflation; financial and leasing services continue to provide services to their customers who may wish to acquire a new vehicle without wanting to lock a significant amount of capital.

Nevertheless, a contracting economic cycle may bring increased delinquency and risk of defaults, so close monitoring will be required.



# Fuel Revolution – Our point of view

## “Fuel Revolution is here”

Transport is responsible for about one-quarter of all energy-related greenhouse gas emissions and about 72% of this is due to road transport.<sup>1</sup>

The urgency to reduce average emissions has been pushing OEMs to adopt electrification strategies and governments to tighten their emissions requirements.

As more and more OEMs join the race, alternative fuels and different technologies such as wireless charging are being brought to the table, each with its strengths and weaknesses.

Due to advances in technology and reduction in the price per kWh, debates such as range or charging speed of BEVs are being overshadowed by doubts on total lifetime pollution or recycling of batteries – challenges to which OEMs strive to provide answers.

Nevertheless, this fuel revolution brings new opportunities for Financing companies, such as the inclusion of wall boxes, home batteries, solar panels, as well as individual components of cars upon degradation (e.g., new batteries).



02

## 2.1 Fuel Revolution– Alternative fuels

### Embracing electrification

The share of electric and hybrid vehicles out of the total new car registrations has sharply increased in the past years, with China expected to take over Europe in the shift towards electrified vehicles in 2022.

Alternative fuels like hydrogen or natural gas arise as an alternative to batteries in the challenge against fossil fuels, but the technology is yet inefficient or unattractive due to lack of infrastructure.

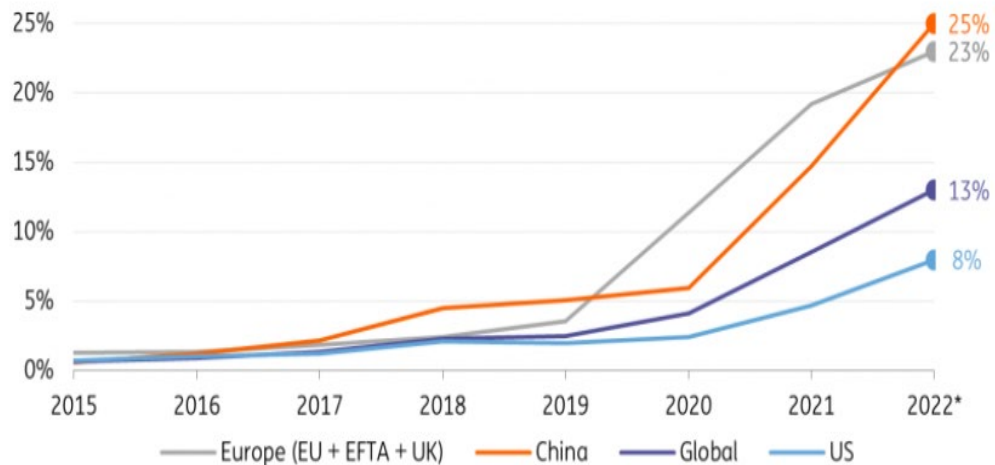
### Green Hydrogen: low emissions yet inefficient

FCEVs driving on hydrogen solely produced from renewable electricity correspond to 76%–79% lower life-cycle GHG emissions than gasoline cars.<sup>2</sup>

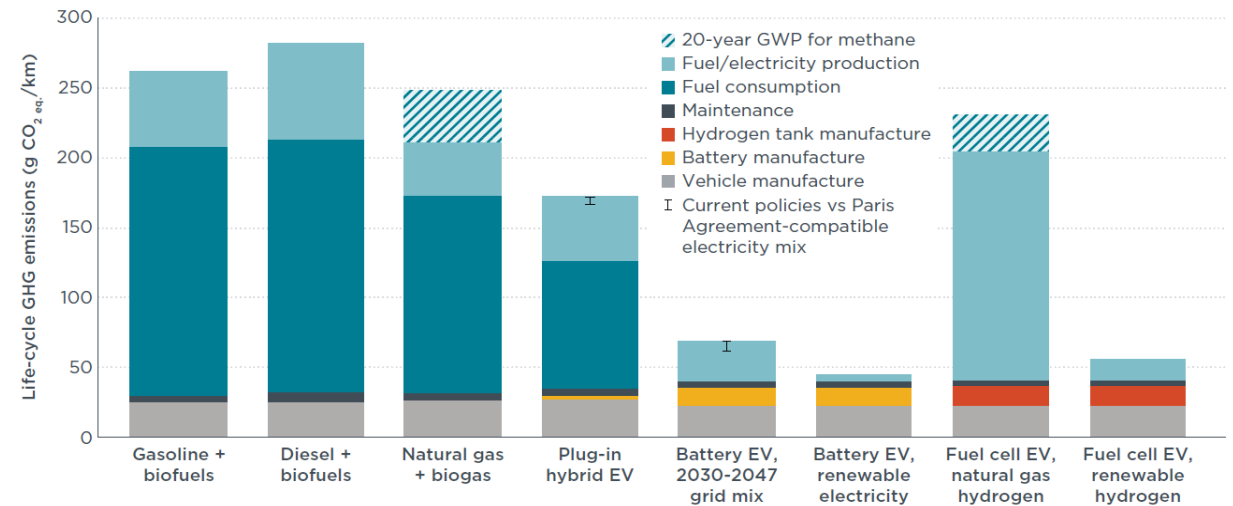
However, if hydrogen-based fuels were to be produced with the current electricity mix, they would increase greenhouse emissions – not reduce them.<sup>3</sup>

Additionally, compared to the use of renewable electricity in BEVs, the energy demand of driving FCEVs on electricity-based hydrogen is about three times higher.<sup>2</sup>

Share of electric vehicles (BEV + PHEV) in total new car registrations per region



Source: BNEF, ING Research \*forecast



Life-Cycle GHG emissions of SUV segment gasoline, diesel, and CNG ICEVs, PHEVs, BEVs, and FCEVs registered in Europe in 2030

## 2.1 Fuel Revolution– Alternative fuels

### Future of Hydrogen

Technical developments such as solid-state batteries and fast-charging; and economic developments reducing costs, could soon make hydrogen vehicles a good alternative only for heavy road and maritime transport, but not as convenient in light road transport.<sup>1</sup>

### What's happening to diesels?

Although in steady decline for passenger cars, diesel still plays a major role in vans and trucks. Vans will electrify faster but trucks will take longer due to a lack of long-range alternatives for purchase.

**Finland  
Diesel  
Registrations  
2015 & 2022**

Cars	35%	→	7%
Trucks + Vans	99%	→	93%

35%

7%

99%

93%

### Natural Gas

CNG passenger vehicles emit 5-10% less CO<sub>2</sub> than comparable gasoline-powered passenger vehicles. Compared to diesel-powered cars, there is barely any benefit in terms of CO<sub>2</sub> emission reduction, but the NO<sub>x</sub> and soot emissions of CNG-powered vehicles are substantially lower than of diesel-powered vehicles.<sup>2</sup> Lack of models and infrastructure made CNG registrations peak in Finland in 2020 (1,90%), with a steady decline since (0,46% in H1 2022).

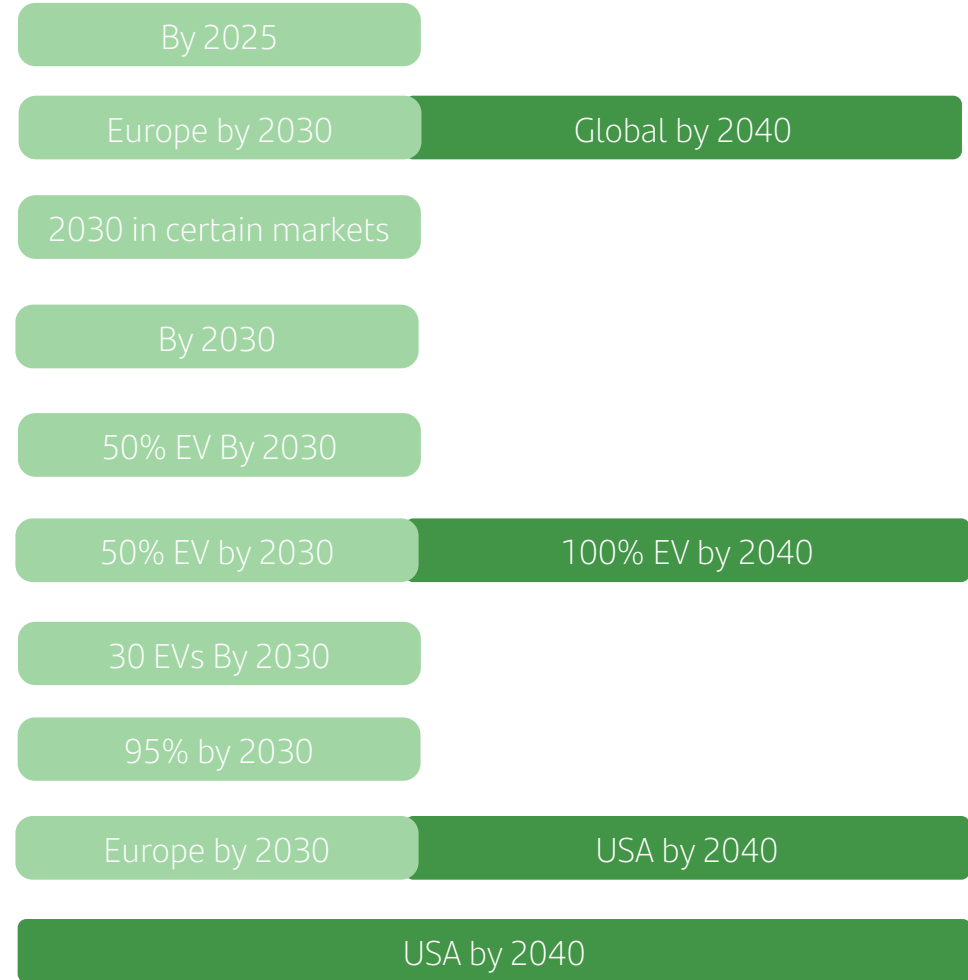


<sup>1</sup> - Skud, "What common sense has made clear for Vans: Hydrogen fuel cells cannot catch up to battery-electric vehicles - Electrek  
<sup>2</sup> - <https://www.technologylibrary/vehicle-and-fuel-technologies/compressed-natural-gas-cng-vehicle#:~:text=and%20emissions%20vehicles%20emit%20less%20than%20from%20diesel%20powered%20vehicles>



## 2.2 Fuel Revolution– OEM electrifications

With EU's intention of banning sale of new fossil-fuel cars from 2035 (Norway from 2025), OEMs start to get ready for the transition, with some of them having ambitious goals and others adapting their efforts according to the needs of each region.



## 2.2 Fuel Revolution– OEM electrifications



### New OEMs coming to Europe

The Nordic markets have become the gate to Europe for new manufacturers. Some, like MG, have obtained a successful start. Others, like Lucid, offer increased range over what was the norm. Additionally, some OEMs like Nio explore other charging technologies such as battery swap.

Names like Maxus, Hongqi, Xpeng, BYD or Voyah, among others, are increasingly becoming part of the everyday conversations of Nordic people.

### Wireless charging & Battery Swapping

Advances in technology will improve the experience of BEV users. For example, in March 2022 Volvo Cars shared news about their wireless EV charging testing ongoing in Gothenburg, Sweden, that enables the EVs operated by taxi company *Cabonline* to charge wirelessly while at stations.<sup>1</sup> Some OEMs, like NIO, are also betting on battery swapping for fast charge and flexibility, allowing users to swap an empty battery for a full one, or even a bigger one if the user is going on a trip.

### Bundling, Subscription and Direct Sales

Well-established OEMs are exploring new solutions such as subscriptions or bundling of costs (e.g., Care by Volvo, Access by BMW). Direct sales are also being explored, such as Volvo's direct sales of their EV lineup. Some new OEMs, like Lynk&Co, also offer monthly subscriptions to overcome potential reticence to purchase a car from a yet not-so-known brand.

## 2.2 Fuel Revolution– OEM electrifications

### Solid state batteries: evolution or revolution?

Solid state batteries use innovative solid materials instead of liquid electrolytes to carry electric current, making the batteries lighter, more energy dense, faster to charge, and eventually cheaper. They require up to 35% more lithium than current lithium-ion technology but use far less graphite and cobalt, mostly sourced from Democratic Republic of Congo.<sup>1</sup>

According to recent studies comparing existing and solid technologies, solid-state batteries can decrease the carbon footprint of an EV by 24%, or up to 39% if sustainably sourced technology and materials are used.<sup>2</sup>

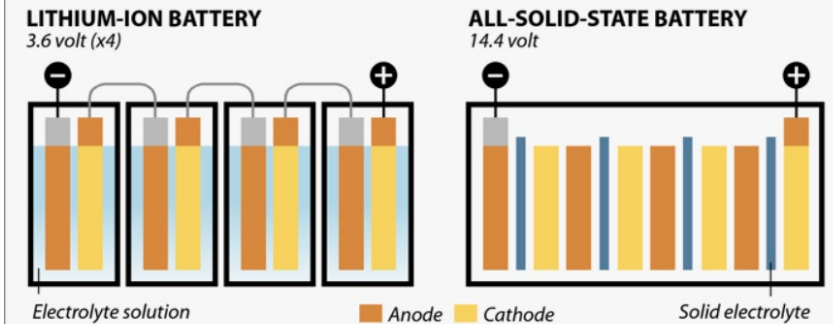
Solid-state developer **Solid Power** announced in June 2022 that it has completed the installation of an automated pilot production line aimed at internal testing before supplying partners, which include BMW, Ford or Hyundai. Another leading researcher, California-based **QuantumScape**, has a market capitalization of \$5.1 billion and is working with Volkswagen<sup>3</sup>, making solid-state batteries in EVs closer to a reality in the upcoming years.



Solid Power's 22-layer, 20Ah all-solid-state lithium metal cell compared to the company's first-generation 10-layer, 2Ah cell.

### Solid-State Batteries

Nearly all electric vehicles and energy storage systems use variations on lithium-ion batteries, in which ions pass through a liquid or gel. Researchers are working to develop solid-state batteries in which ions would pass through a solid material, and could pack more energy into a smaller space. Here is a simplified look at both kinds of batteries:



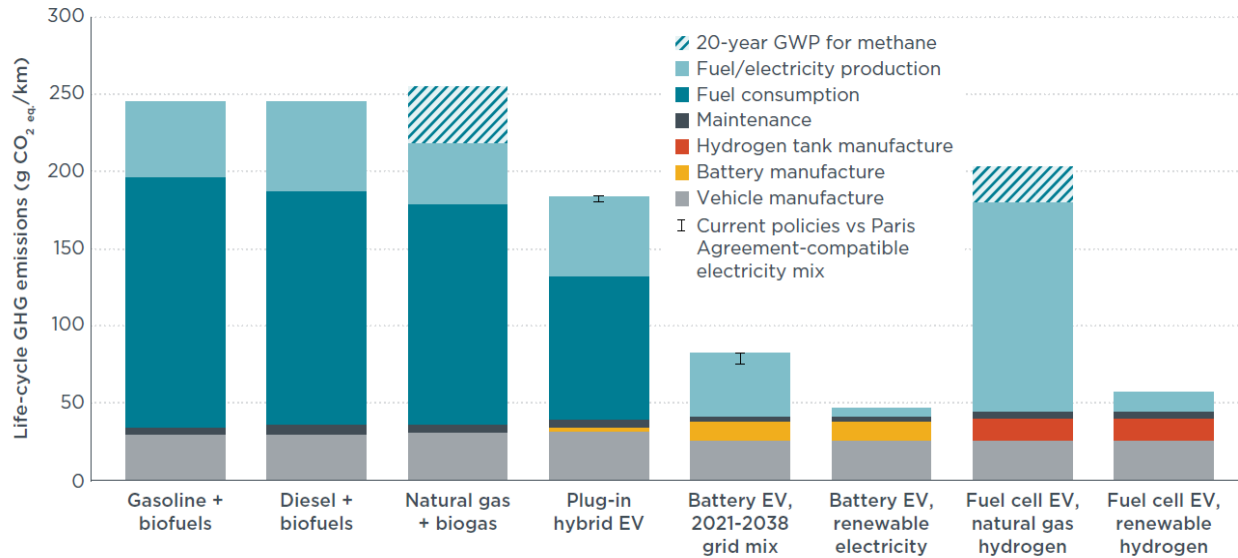
SOURCE: Toyota

PAUL HORN / Inside Climate News

## 2.3 Fuel Revolution– Lifetime pollution & recycling

Both fuel type and source of electricity play a major role in calculating the life-cycle emissions of a vehicle. Therefore, those geographies with a more favorable electricity production mix will feature significantly reduced lifetime emissions.

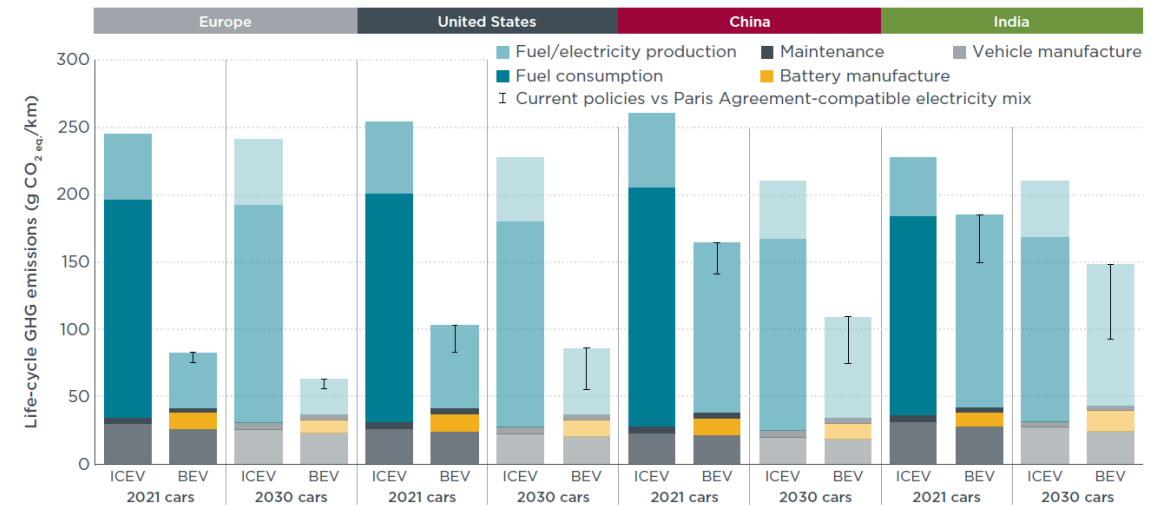
BEVs registered in Europe in 2021 are estimated to have less than half the emissions of ICEs and FCEVs using natural gas hydrogen. These figures are improved by FCEVs using renewable hydrogen and could be further lowered if the electricity used in BEVs came from renewable sources.



**Figure 3.2.** Life-cycle GHG emissions of lower medium segment gasoline, diesel, and CNG ICEVs, PHEVs, BEVs, and FCEVs registered in Europe in 2021.

BEVs expected to be registered in 2030 have **71%–77%** lower GHG emissions than gasoline cars.

BEVs that run entirely on renewables have **78%–81%** lower life-cycle GHG emissions than their counterpart gasoline cars.



**Figure ES.1.** Life-cycle GHG emissions of average medium-size gasoline internal combustion engine (ICEVs) and battery electric vehicles (BEVs) registered in Europe, the United States, China, and India in 2021 and projected to be registered in 2030. The error bars indicate the difference between the development of the electricity mix according to stated policies (the higher values) and what is required to align with the Paris Agreement.

## 2.3 Fuel Revolution– Lifetime pollution & recycling



Steel is responsible for 7% of all greenhouse gas emissions, and about one-third of all the emissions of producing a Volvo<sup>1</sup>. For this reason, Volvo Cars has, among other companies, signed up to **SteelZero**, which is an initiative that aims to reach carbon neutrality in steel production as well as focus on labor and human rights, engagement with local communities, water use, and biodiversity impact - all related to the steel supply chain.

**HVBatCycle** is a Volkswagen-led research consortium that succeeded at recycling multiple times the same battery. The process used is mechanical-hydrometallurgical (crushing and separating using chemicals), which requires much less energy than a pyrometallurgical process would (melting the battery). The next phase of the study aims at making the process viable at scale and financially efficient over time. Other partners include J. Schmalz GmbH, Viscom AG or Battery LabFactory Braunschweig, among many others.

The biggest battery recycling plant in Europe began operations in May 2022 in Fredrikstad, Norway. When fully operational, **Hydrovolt**, as it is called, will recycle over 12,000 tons of battery packs every year – more than enough to cover the entire volume of batteries being retired from the Norwegian EV market. Additionally, it will also handle batteries from electric ferries, grid energy storage systems, and more as they begin to receive batteries from Sweden and Europe.

## 2.4 Fuel Revolution– Impact on financing

The Fuel Revolution brings new opportunities for finance companies thanks to the multiple complimentary items and installations that the car owner may be interested in purchasing.

- Financing of new car batteries after degradation of old ones throughout their lifetime.
- V2G financing opportunities (charge overnight, push to the grid during peak hours, invoice bundled).
- Bundling opportunities: vehicle, winter tires, home charger, home battery, solar panels, insurance.

It also brings risks such as difficulty in assessing the correct future residual value of vehicles in a climate of rapid political and technological changes.



# Legislation & Taxation – Our point of view

## “Taxation as incentive”

The local governments in the Nordics as well as the EU see taxation as an influencer for customer behavior regarding car purchases and usage. The main goal seems to be to facilitate the transition from polluting to less polluting vehicles.

The main EU directives Clean Air for Europe (CAFE) and emission standards for vehicles and manufacturer aim to reduce the Co2 and other emissions of newly produced vehicles. Locally governments provide benefits to cars with low or no emission, such as reduced road tax, purchase incentives and free charging or parking. Each country uses different ways to achieve the ultimate goals.

Changing knowledge and experiences and success factors determine which incentives are continued, stopped or changed over time.

A child is stacking wooden blocks on a table. The child's hands are visible, and the blocks are arranged in a small pyramid. The background is blurred, showing a window and some furniture.

# 03

## 3.1 Legislation & Taxation – Luxury and other taxes



### Taxes

Car taxes vary between the Nordic countries, there are purchase taxes (VAT, luxury tax) as well as usage taxes (road tax). Each country is planning to change their taxation schemes in different ways

### CAFE & Other regulations

Clean Air for Europe (CAFE) regulations from the European Union were updated and entered into force on January 1st, 2020, setting Co2 emission performance standards for new passenger cars and vans.


### EU emission standards

In the European Union, emissions are regulated for most vehicle types, including cars. Compliance is determined by running the engine at a standardized test cycle. Non-compliant vehicles cannot be sold in the EU nor Norway.



### 3.1 Legislation & Taxation – Luxury and other taxes



**Denmark** 

The Danish government announced plans for a green conversion of road transport with major milestones in 2025 and 2030.

Registration tax is up to 150%, significantly lower for low emission vehicles. In the plans, the benefit reduces over time as low emission vehicles become the standard.

*The Danish taxation is complex and this is a simplified view of the development*

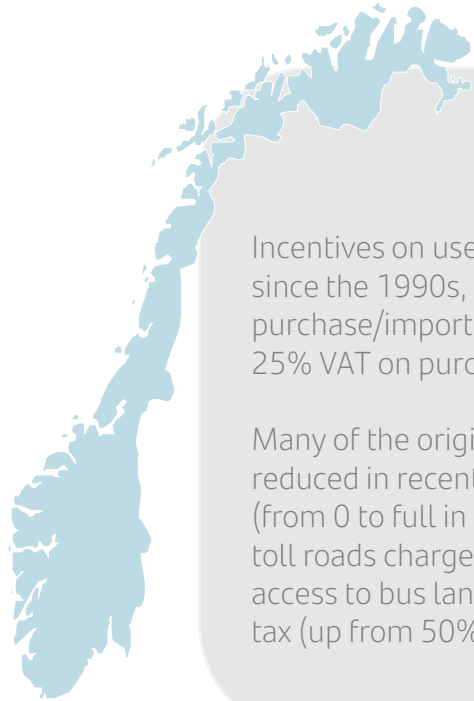


 **Finland**

Registration tax for EV and hydrogen vehicles has currently been set to zero.

€ 2.000 subsidies have been in place for individuals purchasing EVs with a value below € 50.000

### 3.1 Legislation & Taxation – Luxury and other taxes

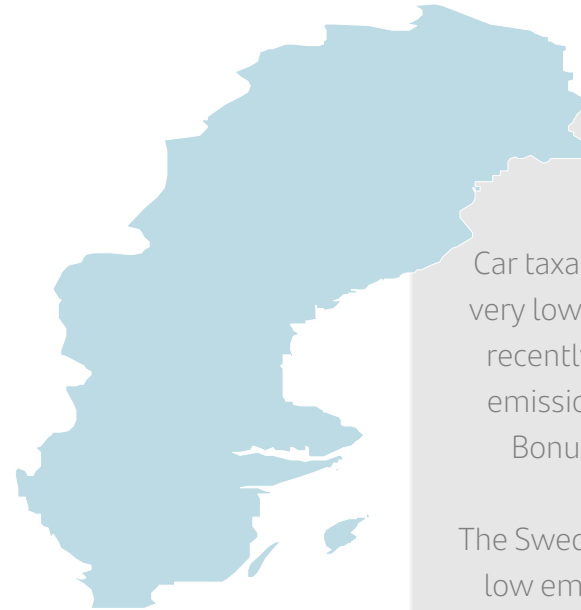


Norway



Incentives on use of EVs has been in place since the 1990s, including: no purchase/import taxes, exemption from 25% VAT on purchase.

Many of the original full benefits have been reduced in recent years, such as road tax (from 0 to full in 2022). Parking, ferry and toll roads charges (from 0 to 50%). (Less) access to bus lanes. Reduced company car tax (up from 50% to 20% reduction)



Sweden



Car taxation has traditionally been very low. Road taxes have changed recently with the introduction of emission based taxes, through a Bonus-Malus methodology.

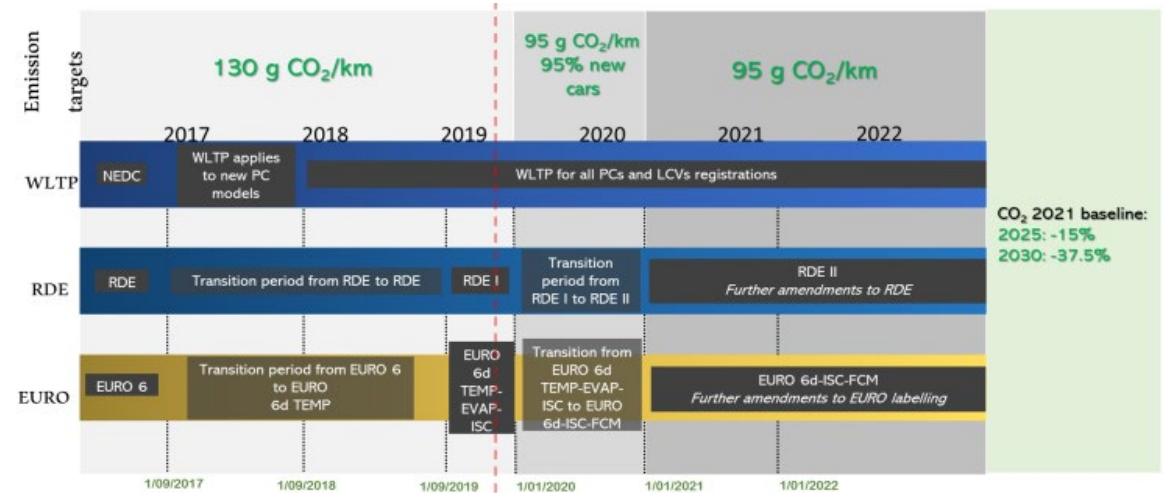
The Swedish government subsidizes low emission vehicles purchases with grants up to 70.000 SEK in 2022 gradually being reduced in 2023.

### 3.1 Legislation & Taxation – Luxury and other taxes

#### CAFE regulations impact

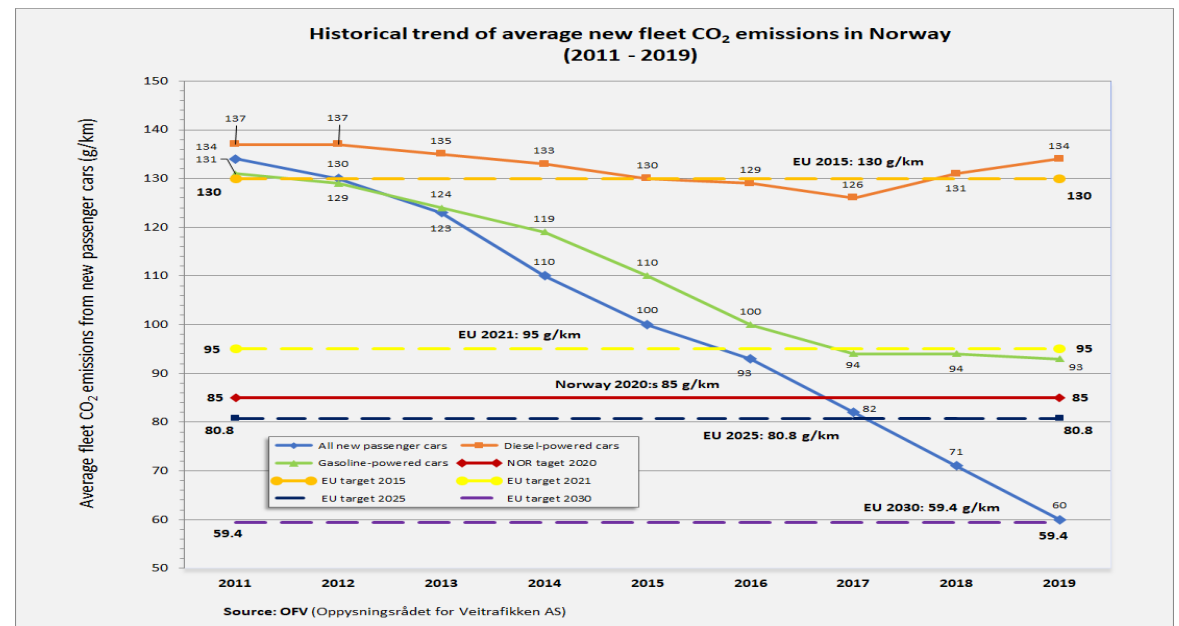
For the period 2020-2024 the targets are set to 95 g CO<sub>2</sub>/km for cars (and 147 for vans). After 2025 they are based on the 2021 actual performance.

As a result of the implementation Co2 emissions from vehicles dropped by 12% in 2020 compared to 2019.



#### EU emission standards

The emission standards include nitrogen oxides (NO<sub>x</sub>), total hydrocarbon (THC), non-methane hydrocarbons (NMHC), carbon monoxide (CO) and particulate matter (PM) and are referred to as Euro1-6. Euro 7 standards will be communicated in 2022 and apply from 2025.



### 3.1 Legislation & Taxation – Luxury and other taxes

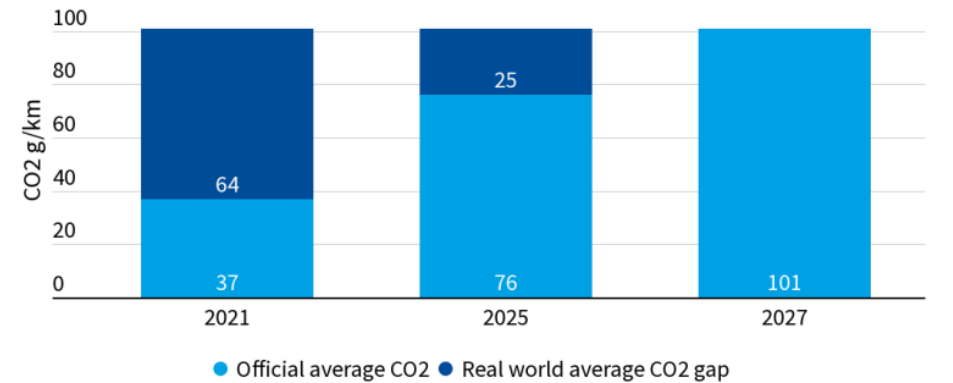
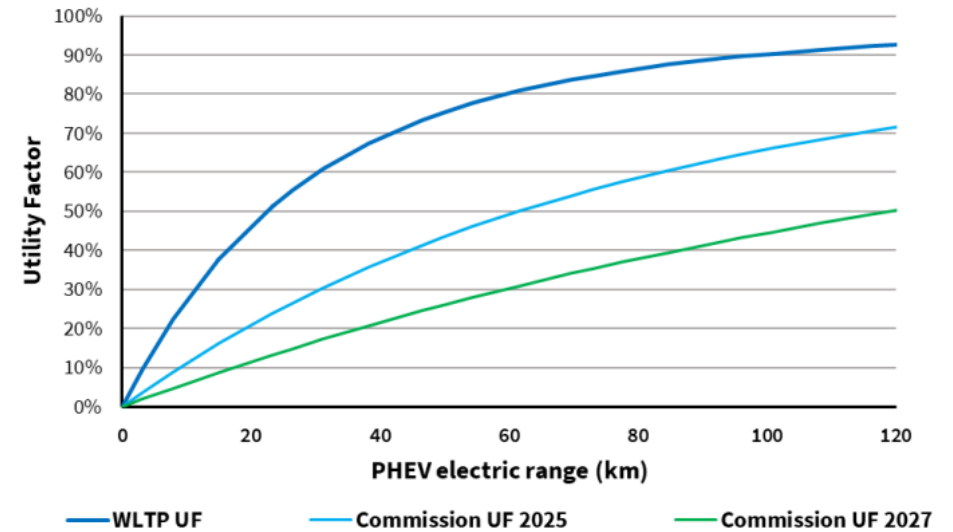
#### PHEV to have stricter emissions regulations

Recent studies show that, on average, the official tests only account for one-third of the CO<sub>2</sub> emitted by privately owned PHEVs (and therefore one-third of the fuel used) in reality. For company cars, it is even worse, with just 11–15% of kilometers driven electrically when official assumptions are for 70–85%.<sup>1</sup>

From 2025, the EU aims to significantly reduce the share of electric driving, the Utility Factor (UF), that regulators use for calculating CO<sub>2</sub> emissions of PHEVs so that from 2027, the share will be fully aligned with how they are driven in the real world.

The proposal includes a two-step approach to updating PHEV CO<sub>2</sub> emissions:

1. Firstly, in 2025 the UF curve will be reduced from the current WLTP UF to the Fraunhofer UF calculated for private cars. This assumes that around 50% of PHEV kilometers are driven electrically.
2. Secondly, in 2027 the UF curve will be updated to include company cars, assuming a 50:50 split between private and company vehicles.



Source: T&E analysis of the impact of the European Commission proposal on CO<sub>2</sub> emissions of EU PHEV 2021 sales covering 85% of EU 2021 new PHEV sales

### 3.2 Legislation & Taxation – Impact on financing

The regulatory environment keeps on changing for different types of cars, often based on emission. Changing car prices and taxes provide for Finance opportunities and threats.

- Solutions which include incentives are preferred and provide opportunities
- Finance companies will need to apply taxation correctly and ensure the finance products match requirements (for example VAT on leasing can drive product choices)
- Introduced regulation on manufacturers will change the car production and consequently the needs for financing (e.g. higher priced vehicles).



# Players taking new positions– Our point of view

## “Changing value chains”

Only a few years ago, the most common way to buy a vehicle was to explore the internet, configure a car and visit a dealership (or two) to purchase a vehicle. The number of dealers visits have dropped (COVID accelerating an existing trend) and the delivery times of cars getting longer due to supply shortages and other factors. Manufacturers (OEMs), dealers, rental and finance companies all redefine their place in the value chain.

Direct/home delivery by the manufacturer is no longer the exception and showroom visits are optional. Renting becomes longer, leasing more flexible. Dealers finance, OEMs sell, rental companies leasing, leasing companies rent. The traditional roles are shifting, all with the aim to offer the customer the best and easiest solution and maintaining profit by each party involved



04

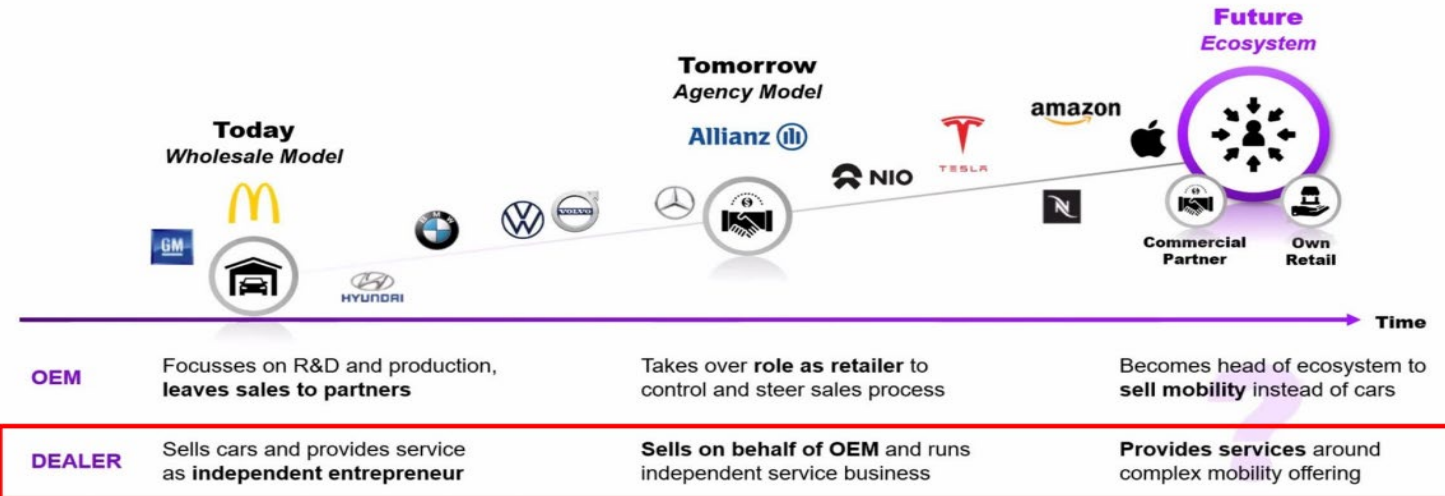
## 4.1 Players taking new positions – Closer to value chains

### OEMs closer to value chain

During 2019, the launch of new players directly delivering to customers was very much in focus. For example Lynk & Co, NIO, but also Tesla's growth. During 2020-2025 the changing role of the Dealers and OEMs, such as the Agent model is getting more attention and traction



## 4.1 Players taking new positions – Closer to value chains



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### OEMs closer to value chain

The traditional roles in the value chain are changing. Car dealers are moving towards service and full mobility solutions, for example by becoming importers and/or full mobility providers. OEMs are moving to online sales and sell directly to consumers. Retailers companies such as Amazon start offering mobility and ultimately may choose to produce vehicles.

Main drivers are to get better control over the customer lifecycle and retain margins or dominance in the respective market.



## 4.1 Players taking new positions – Closer to value chains

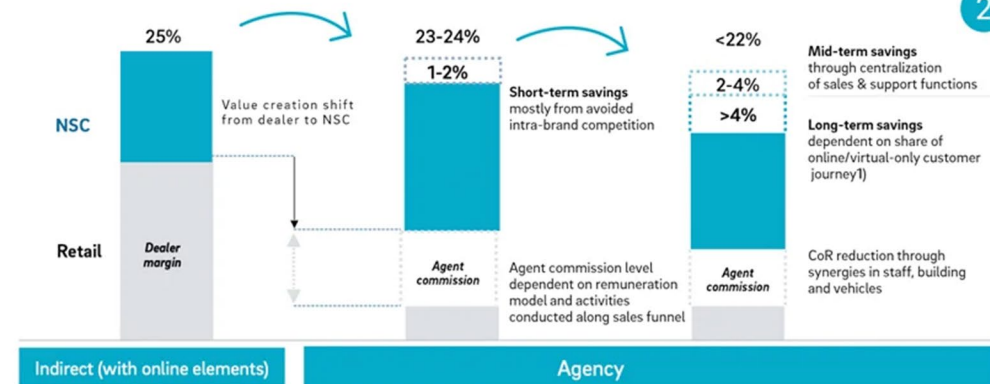
### OEMs and the Agency model

The Agency model which has been announced in the Nordics by Stellantis, Volkswagen and in use by Mercedes reduces the cost of distribution for the manufacturer as well as the risks for the agent. Agents become the delivery and service points for the vehicles.

Sweden is chosen as a test market for several brands, as the market is sizeable and digitally advanced, but also manageable if an OEM would fail.

## Learn more about the agency sales model and why it is so promising for many car manufacturers

Indirect vs. agency – Cost of Distribution effects of switching [in % of MSRP]



1 Shift of cost and short-term cost savings

2 Mid- to long-term CoD optimization

1) Online share of >25% and agent contract negotiation with key impact on long-term Cost of Distribution savings

Source Roland Berger



## 4.1 Players taking new positions – Closer to value chains



### Dealer change example

Swedish dealer group Hedin expands in Europe and announced recent acquisitions of Importerships (e.g. Ford in Sweden 2020), Dealers (Laakkonen in Finland 2022) and Financial Services (MBFS in Slovakia 2022). *“It will add additional synergies and revenue potential to our coming operations”* Anders Hedin has been quoted

### Auction House example

Constellation Automotive Group, who owns auction house BCA, as well as cinch (online car sales), announced to acquire Marshall Motor in the UK in 2022.

The role of the company changes to ensure a larger part of the trade cycle

### Leasing & Rental

Traditional renting companies are looking to increase their offering to longer periods to for example meeting the longer delivery times for new cars.

Leasing companies offering shorter term leasing and more flexible increments

## 4.1 Players taking new positions – Closer to value chains



A large group of manufacturers is entering Europe through the Nordic countries. Some of these brands are just starting their endeavor in the industry (such as Lucid), some have relaunched old successful names (like MG), and others are backed by some of the biggest car manufacturers in Asia (such as SAIC, Dongfeng of Geely).

## 4.2 Players taking new positions – Impact on financing

Changing roles of all parties in the car trade cycle, requires new finance solutions

- Shorter term leasing and long-term rental will create an overlap, where finance is essential.
- Flexibility becomes crucial. Loans products are relatively popular as there are no restrictions on early repayment, enabling both short and long-term financing options.
- Finance company's offerings need to be adapted to the changing roles for each of the players in the value chain, from the delivering dealer/agent, the selling OEM to the remarketing through auctions, dealers and directly to consumers.



## The Road Ahead 2.0

# In Short

The auto industry is experiencing one of the most significant disruptions in the last decades. Traditional automakers are challenged by a supply chain crisis, a fuel revolution, a varying set of taxations and incentives as well as the arrival of new competitors and new ways of working.

All the parties in the industry (automakers, dealers, finance companies, etc.) strive to provide solutions to these challenges by acknowledging the opportunities that the new times will bring. These opportunities include repositioning within the value chain, and alliances in R&D to innovate in electrification and new technologies. Those parties able to optimize and act fast enough are expected to have greater chances of success.

The road ahead is paved with uncertainties such as the cohabitation of different propulsion technologies (with different demand and residual values for each), old and new manufacturers, and differences in fiscality and regulation across geographies. While some markets are reaching a certain maturity in new car electrification, others will be forced to accelerate their pace if they want to achieve set targets – that is, if the geopolitical conflicts don't shift priorities.

In this rapidly changing environment where more flexibility and creativity is demanded, finance companies and banks will continue provide the stable backbone by financing and leasing vehicles.



# The Road Ahead 2.0



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