



JANUARY 29-30 • TAMPA FL

SHIFTING TRADE

Title: RORO

Presented By: Flavio Batista





Key questions

Evolving the RORO Industry

What are the main challenges for car makers towards 2030?

How must the supply chains change to meet the developments towards 2030?

What strategies should car makers pursue to take advantage of the shifts in the industry?

How do we adapt to this new customer reality?



The Roll-On Roll-Off Industry Report

1

The World Economy and Global Automotive Shipments

2

Strategic Sourcing Has Given Rise to Port Proliferation and Regional Customization

3

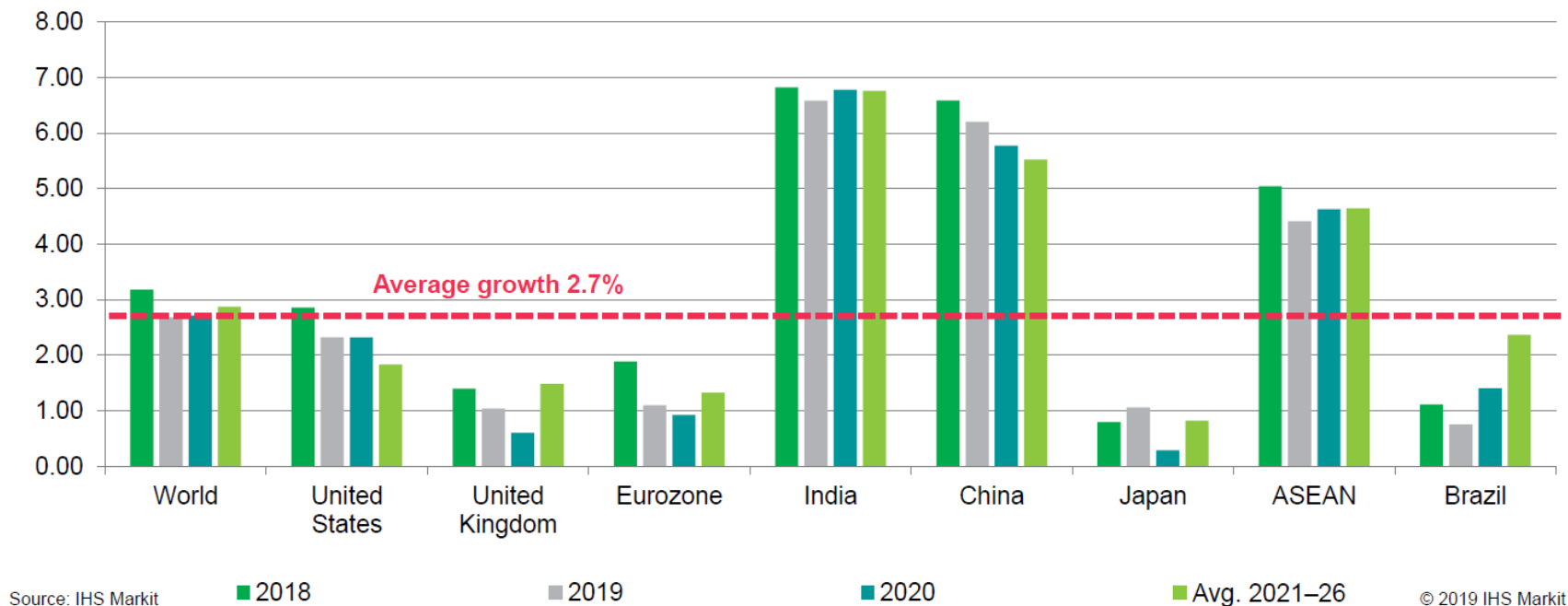
A Fleet Under Pressure

4

Disruptive Change and Preparing for the Future

The world economy has begun to decelerate in 2019

World economic growth rates (GDP) %, 2018-2026



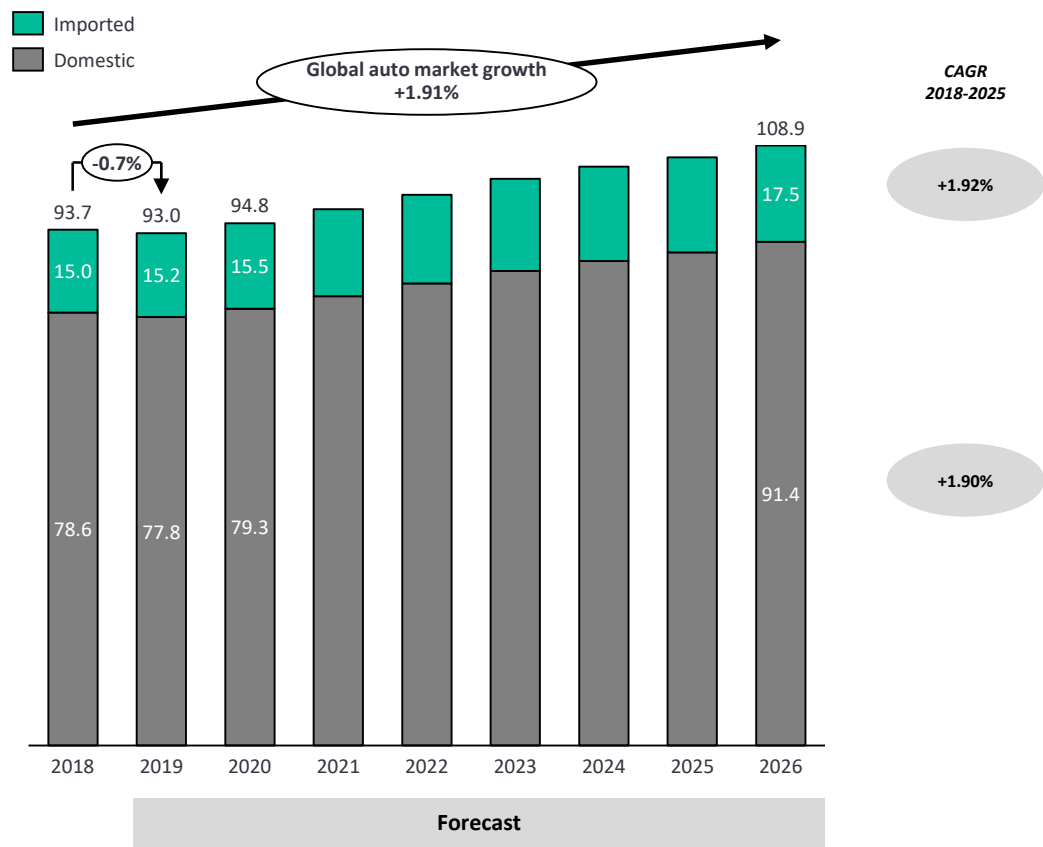
Comments

The global **risks are rising** are increasing.

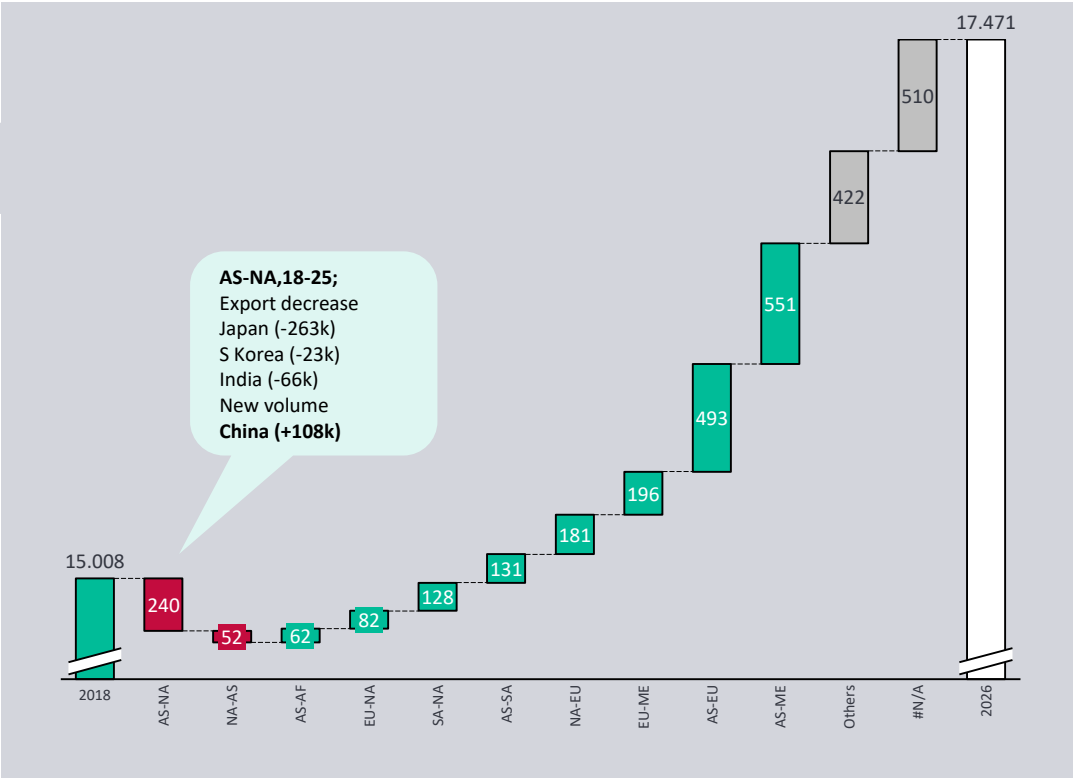
- Unemployment is approaching historical lows across markets; wage growth is improving
- The strong dollar will remain in effect as US monetary policy tightens and trade disputes accelerate the flight to safety
- Manufacturing growth will decelerate as global growth weakens
- PMI indicates weaker growth
- Levels of debt approaching the breaking point
- Inflationary pressure remains within global central bank targets, easing cycle ending
- The consumer outlook is slowing; trade pressures are weighing on growth

Automotive Deepsea Volumes Will Experience Modest Growth

Global LV sales expected to see a CAGR of 1.9%
Million units, per sales region, 2018-2026



Deepsea LV volumes expected to see a CAGR of 2.3%
Million units, 2018-2026



Market Snapshot - RORO

Top 3 biggest milestones in 2019

- Kept volume at around 17M
- Ford announced will stop selling sedans in the US market except for the Mustang (SUV market)
- IMO 2020 - VLSF

Top 3 challenges om 2020

- New regulations – IMO2020 – 2050 Zero Emission
- Segment Diversification within Ports
- Port Fragmentation

Top 3 biggest opportunities in 2020

- Short Sea Mexico/USA
- Growing presence of startup Car companies (ex. Rivian)
- Digitalization – Cars, Terminals, ships



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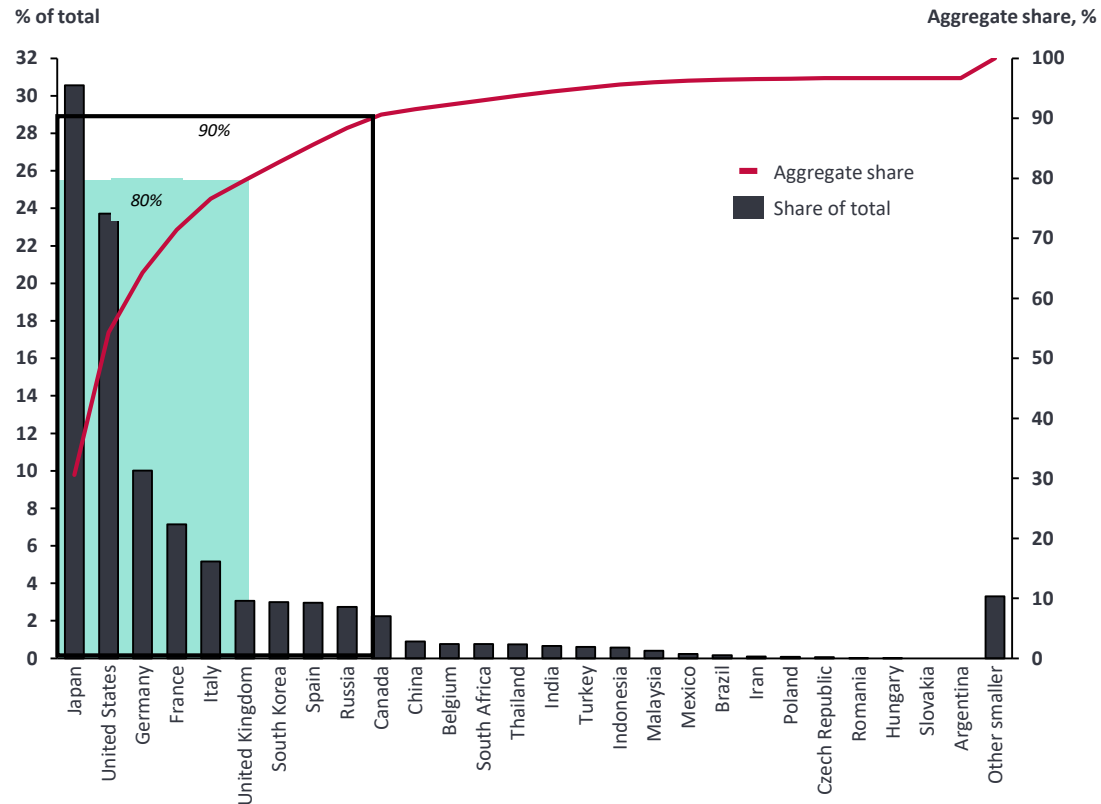
Disruptive Change and Preparing for the Future

In 1990, 5 countries contributed to 80% of the world production

In 2020, manufacturing is more fragmented, with 12 countries contributing to the same 80%

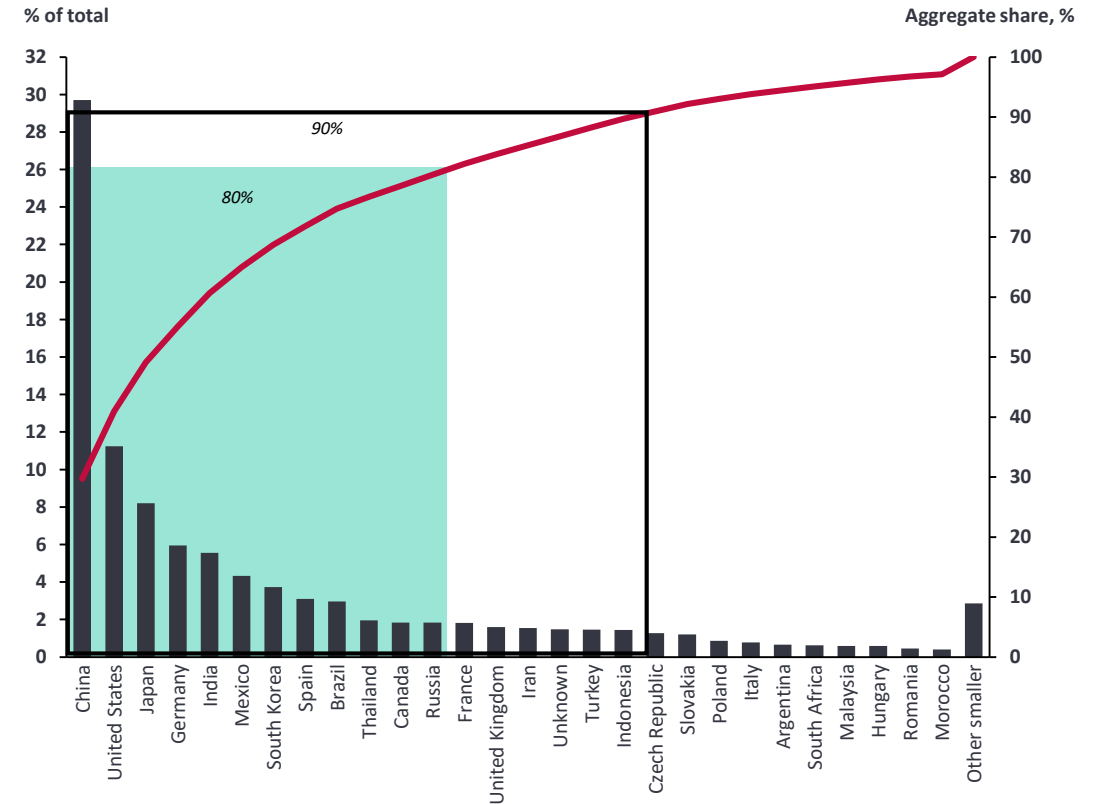
The main manufacturing countries in 1990...

Share of global production, aggregate share, in %, 1990



The main manufacturing countries in 2020...

Share of global production, aggregate share, in %, 2020



Flexible manufacturing, cars get less components and final assembly can be done anywhere

EVs contains significant less parts than conventional vehicles

- Less parts in electric vehicles compared to vehicles with conventional combustion engine reducing the need for complex production facilities, send as SKD
- OEMs do already today use flexible platforms in production
- When cars get selfdriving customers will have even higher desire for quality in production
- 3D printing allow manufacturers to produce at the local markets.
 - Manufacturers have to balance benefits of scale vs transportation. 3D print might be more relevant for particular parts the last 2% adjustments to the car
 - Hard to compete with efficiency at automotive manufacturers plants



A few experiments in tooling, prototyping

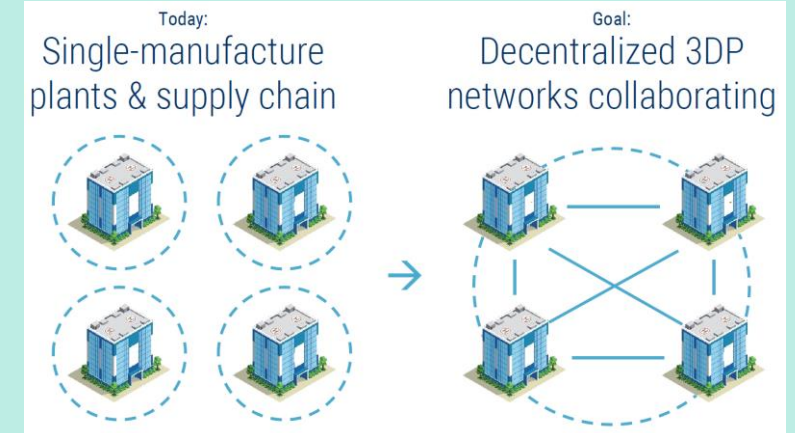
3D printing allows Porsche to create obscure parts for Classic cars –Feb18

Ford produces the largest ever 3D printed metal automotive –Feb19

Volkswagen opens advanced 3D printing center – Jan19

PSA Group puts 3D printing to use for cars chassis –Jan18

A radical rethink –Divergent- hope to change the paradigm from monolithic, billion dollar factories to **networks of smaller, 3D printing-driven plants:**





The complexity is driving increased post-production Port processing

- Strengthen end-to-end coordination and visibility with one single point of responsibility
- Manage time, quality and lead time to strengthen supply chain performance & optimize cost
- Homologation efficiencies where factories are not able to make market-specific changes to base products
- Ensure consistent quality to the dealers with less unprofitable time spent in their shop





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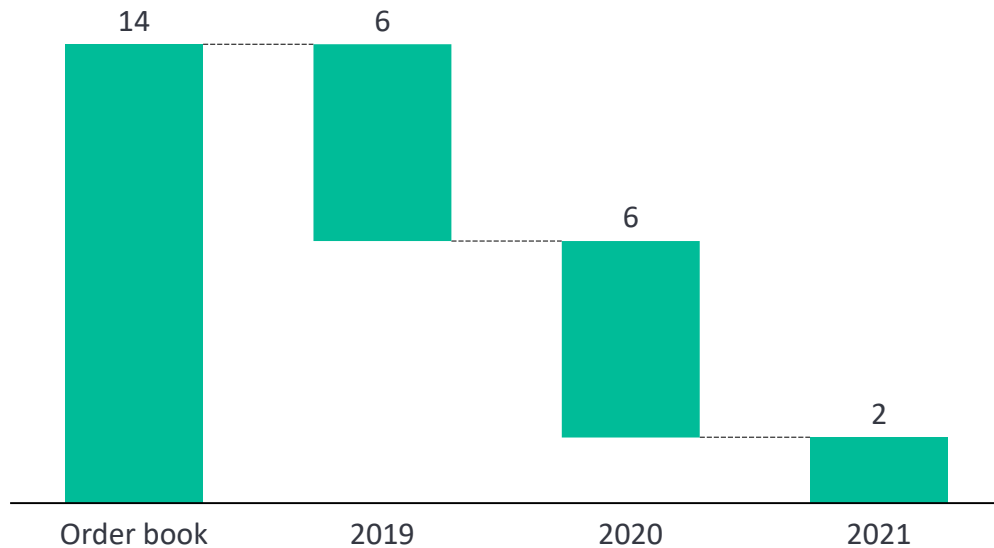
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Disruptive Change and Preparing for the Future

Current markets do not justify new ordering activity (Q3 2019 report)

Car Carrier Fleet Orderbook

vessels equal or above 4000 CEU

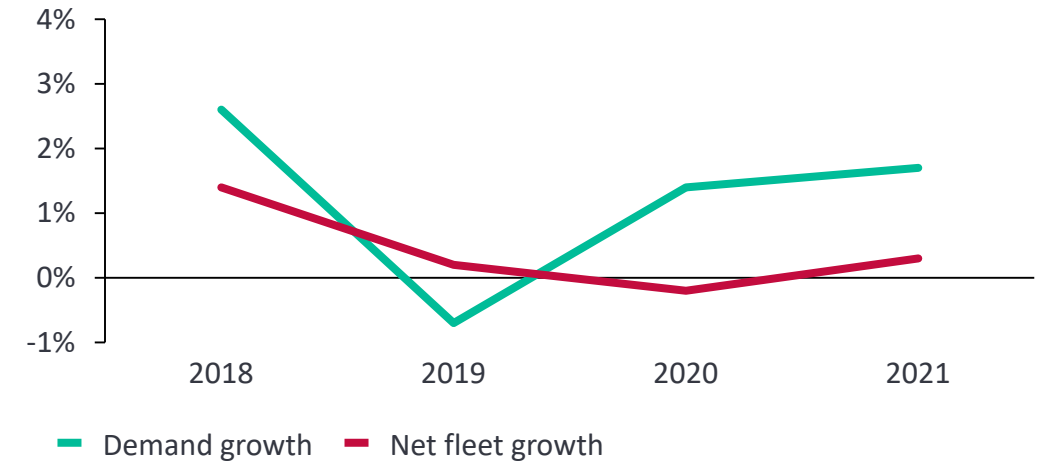


- No new orders were confirmed in the quarter*
- One vessel was delivered, one vessel recycled in the quarter

Fleet and demand growth

Percent

Growth y-o-y



- Deep-sea shipments forecasted to increase with about 2% per year
- Marginal net fleet growth (if any) expected for several years



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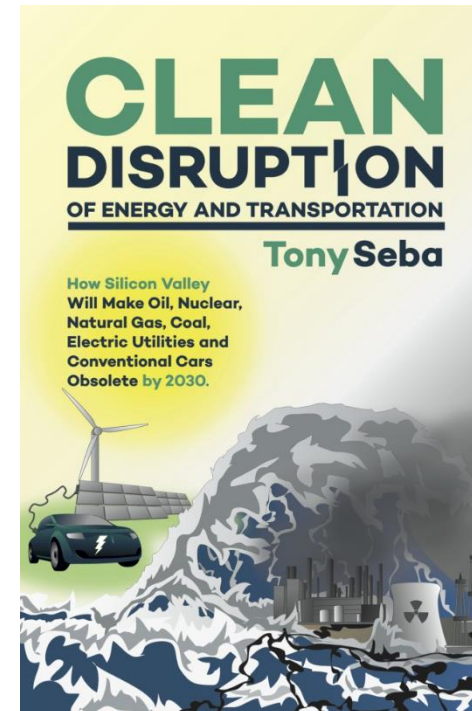
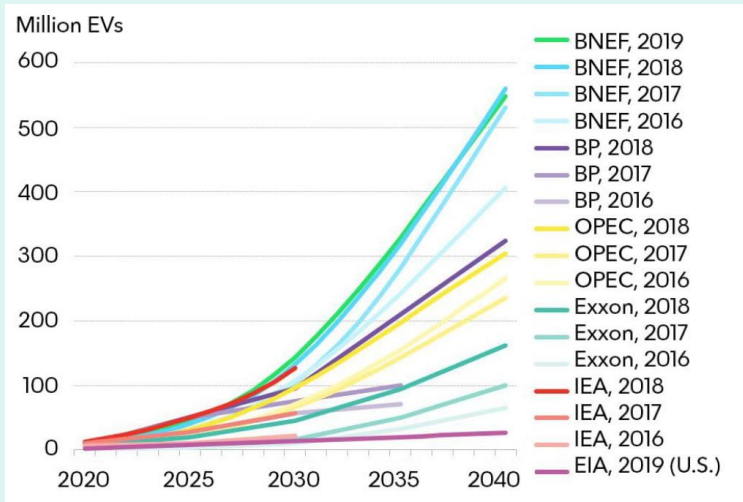
Disruptive Change and Preparing for the Future

The traditional auto business model will be disrupted

-more risk in the medium/long term than it has ever been

Bloomberg NEF and Bank of America

- 1) Transportation is **costly and inefficient**, making the sector ready for disruption.
- 2) In cities 40% of car trips are **less than two miles** (20 minutes bike ride).
- 3) On average cars **idle 95%** of the time.
- 4) Sharing will **disrupt the transportation industry**.
- 5) Auto manufacturers **fighting to take a share** of this part of the industry (GM and JLR investing in Lyft).



Clean disruption of Energy and Transportation (Tony Seba):

Within 10 years of the regulatory approval of driverless vehicles, 95 percent of U.S. passenger miles travelled will be served by on-demand, autonomous electric vehicles owned by companies providing Transport as a Service, which we call TaaS.

–The Collapse of the ICE vehicle and Oil industries.

Our industry is changing –disruptive changes ahead

Electrification



- New routines handling cargo (operational, risk)
- New players
- New manufacturing locations
- El. a catalyst for other trends

Mobility models



- New customers
- Impact on car sales
- Enter new segments like:
- After-sales services / maintaince
- Fleet management

Autonomy



- Changing operational processes
- Maintaince of vehicles
- Longer term, significant changes in the market size possible (up or down)

Flexible manufacturing



- Less finished units to be transported deep sea
- More larger parts like batteries and frame to be moved

New entrants



- Parts suppliers more important
- Old OEMs only hardware provider
- New customers

Electrification in the left lane for the auto industry

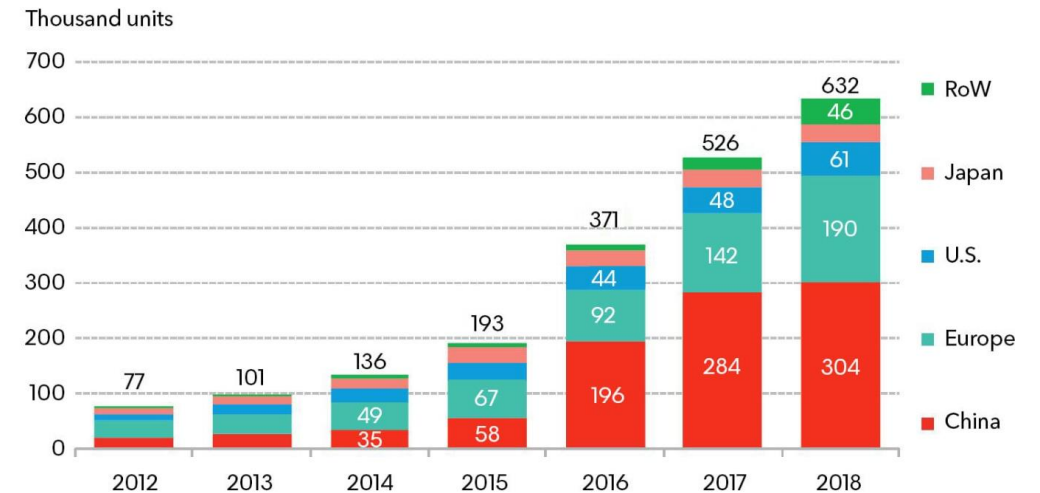
-rollout is very much a political and regional issue

Comments on electrification of LVs

- All global auto manufactures realize the need for being present in the EV segment after Dieselgate
 - smaller OEMs like JLR and Mazda
 - “pro-fuel cell” Toyota
 - «Low end» brands like Skoda
 - Sports car producer Porsche (Taycan)
- Hybrids only for a middle stage
- UK and France to forbid conventional combustion engines from 2040
- China’s New Energy Vehicles (NEV) policies foster EV growth by domestic players. China also plan to ban conventional combustion engines
 - China could become a production hub for electric vehicles, with significant export



Public charging outlets installed globally



Source: BloombergNEF. Note: Data current as of January 1, 2019. Data will be updated on the BNEF data hub at the end of 1H 2019.

Trends

Automated terminal operations: autonomous logistics changes the role of the supply chain

The advent of new technologies allows for developments in Land-based logistics



In a not too distant future:

- Cars, vessels and terminal infrastructure to communicate wirelessly to track flows and information
- Cars will drive themselves onto vessels and around the terminal
- Significant efficiency improvements
- Quality improvement
- Opportunities for increased utilization in terminals
- Loading & discharging operations to be optimised
- Full transparency on location of units & inventories

Trends

The «uberization» of things and the Airbnb model of «ownership»

Does it matter to us?

The
old
model



The
new
model



The
old
model



The
new
model



Autonomy will be the new normal

-not here yet – but much closer than we thought. Waymo a pioneer within self-driving, planning to go full scale by 2020

Autonomy aim to give several benefits:

- Reduce accidents (reduce with >90% however not accident-free, as we saw with Uber in March -18)
- Increase comfort / free up time for driver
- Improve fuel economy / reduce emissions
- Reduce tearing of cars
- Might reduce need for roads as the self driving cars can drive closer
- Less time spent searching for parking (supporting environment)
- Tech less costly (LIDAR, camera, sensor etc.)
- Audi A8 to be delivered with level 3 in 2017, Tesla expect to reach level 5 by 2020
- Self-driving might start in public services first
- Public perception / legal issues / ethics

Waymo – the veteran among self-driving players partner up

Waymo has harvested data for more than 8 years



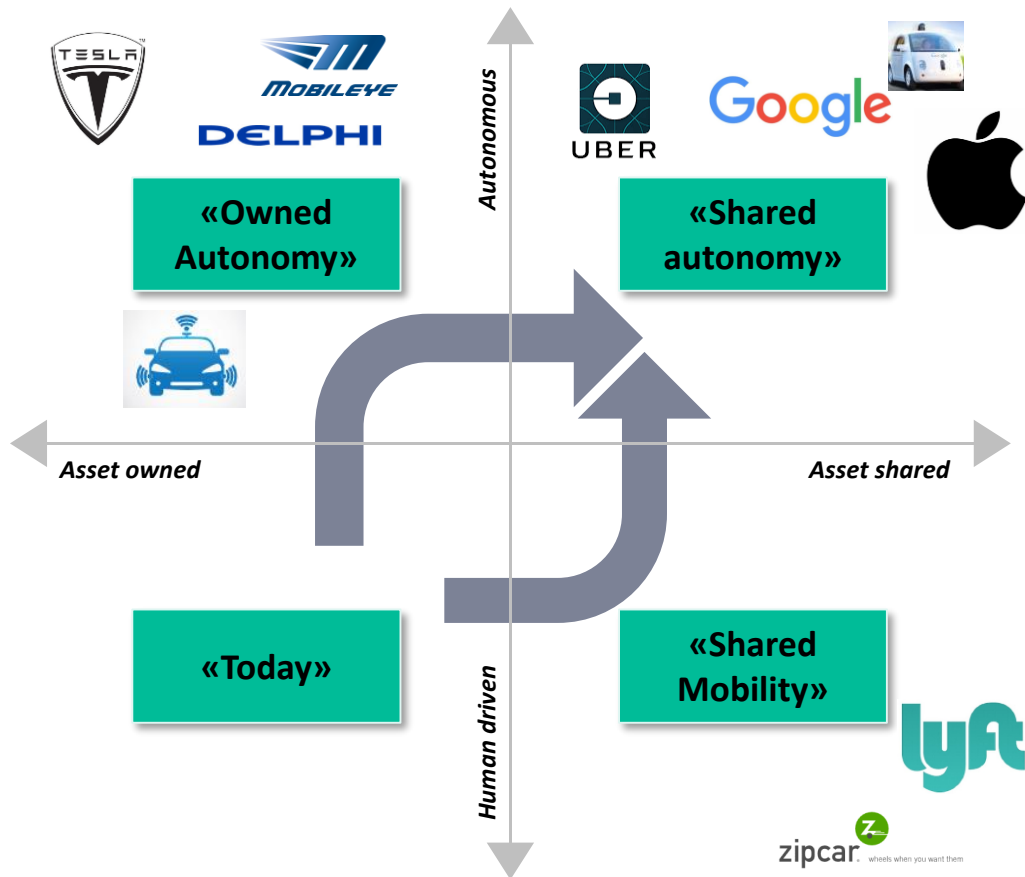
Selected partnerships & deals



1. After spinning out as a formal Alphabet company in December 2016, Waymo **began truly driverless testing in 2017.**
2. Waymo has partnered up with FCA and ordered “Thousands of new Chrysler Pacifica minivans ahead of its **robotaxi service launch**”.
3. Waymo vehicles have by early 2019 driven 6 million miles and the company do tests of **L4+ self driving today.**
 - 4 Generations of Self-Driving Vehicles
 - 8 Years Self-Driving in more than 20 US cities
 - 3.5 million real-world miles on public roads
 - 2.5 Billion self-driven miles simulated in 2016

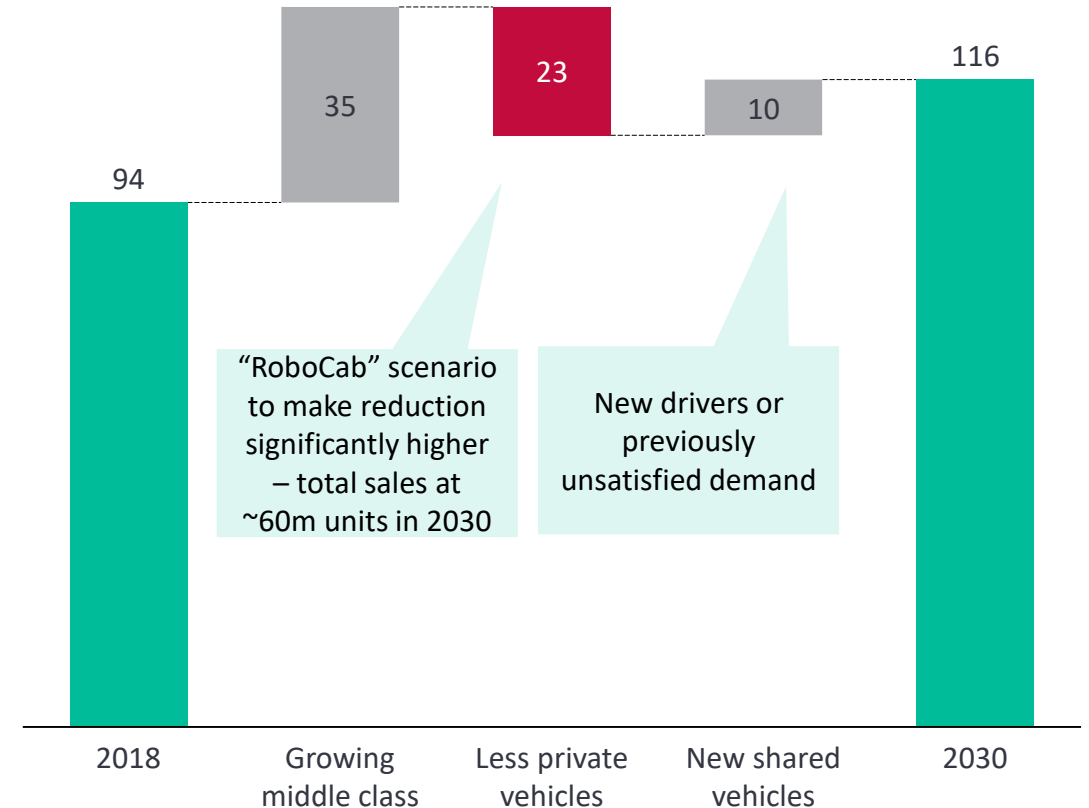
Auto industry in fast paced change – from product to service

Mobility models transformed by user demand and technology...



...but demand for transportation will continue to grow

Annual car sales, million units





Thank You