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Autofacts®

Szenarien des Wandels in der Automobilindustrie

ArGeZ Forum

28 January 2016

pwc

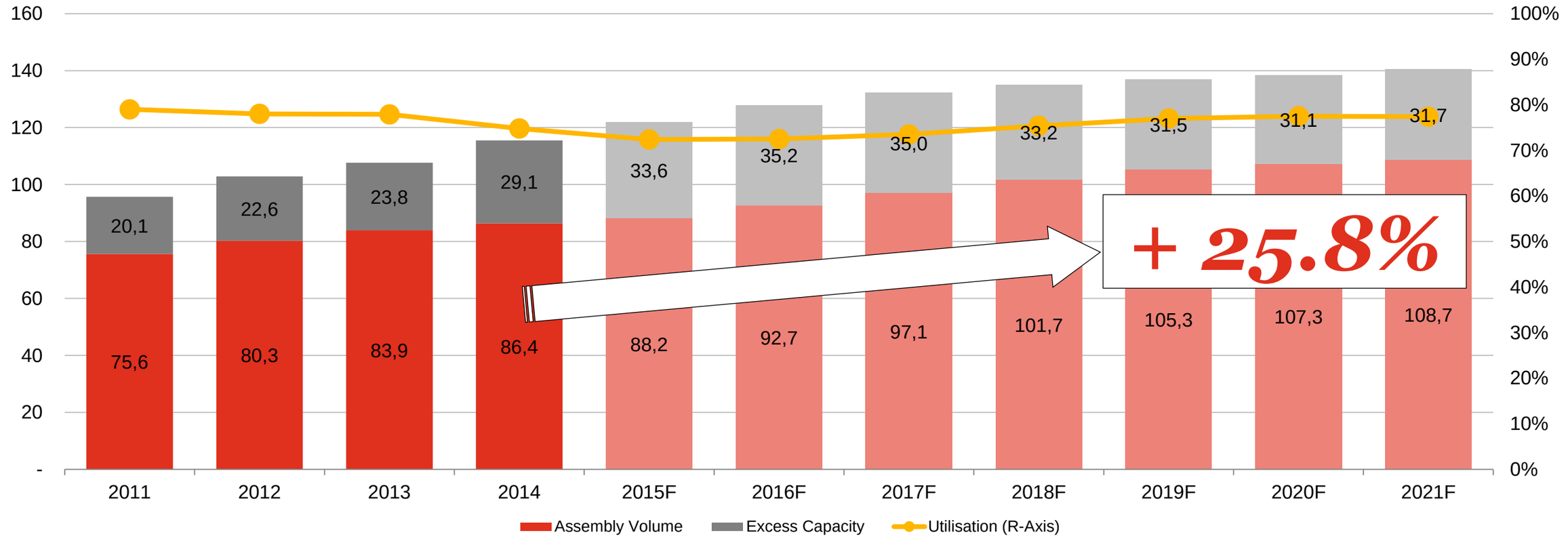
Agenda

Global Forecast Update

Autofacts® estimates light vehicle assembly of 88.2m units in 2015 and forecasts 108.7m units in 2021, equating to a CAGR of 3.6% from 2015 – 2021*

Light Vehicle Assembly

2011 – 2021 (millions)



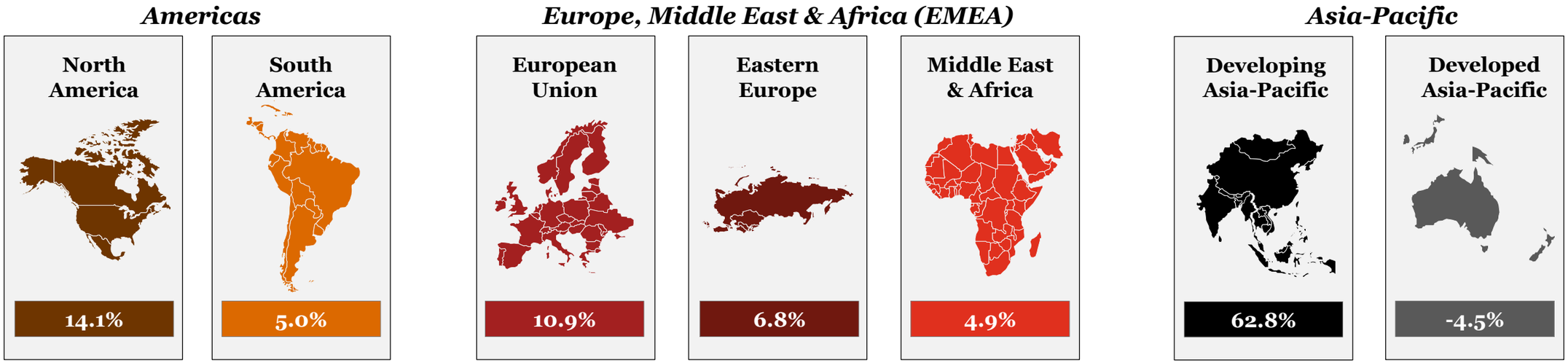
Source: Autofacts 2015 Q4 Forecast Release

*CAGR = Compound Annual Growth Rate

The lion's share of new production is expected to come from developing markets, and in particular developing China and India

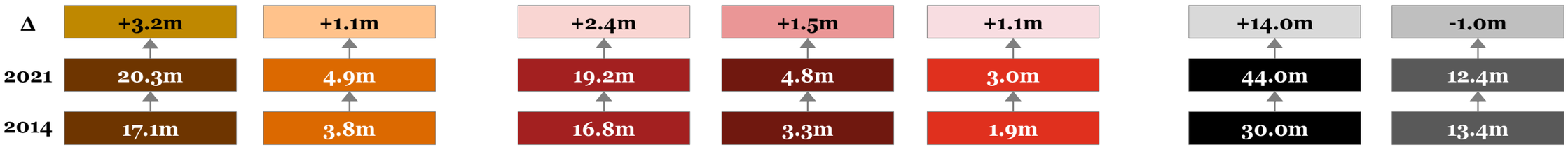
Regional Contribution to Growth*

2014 – 2021 (percentage share)



Regional Topline Comparison & Volume Change

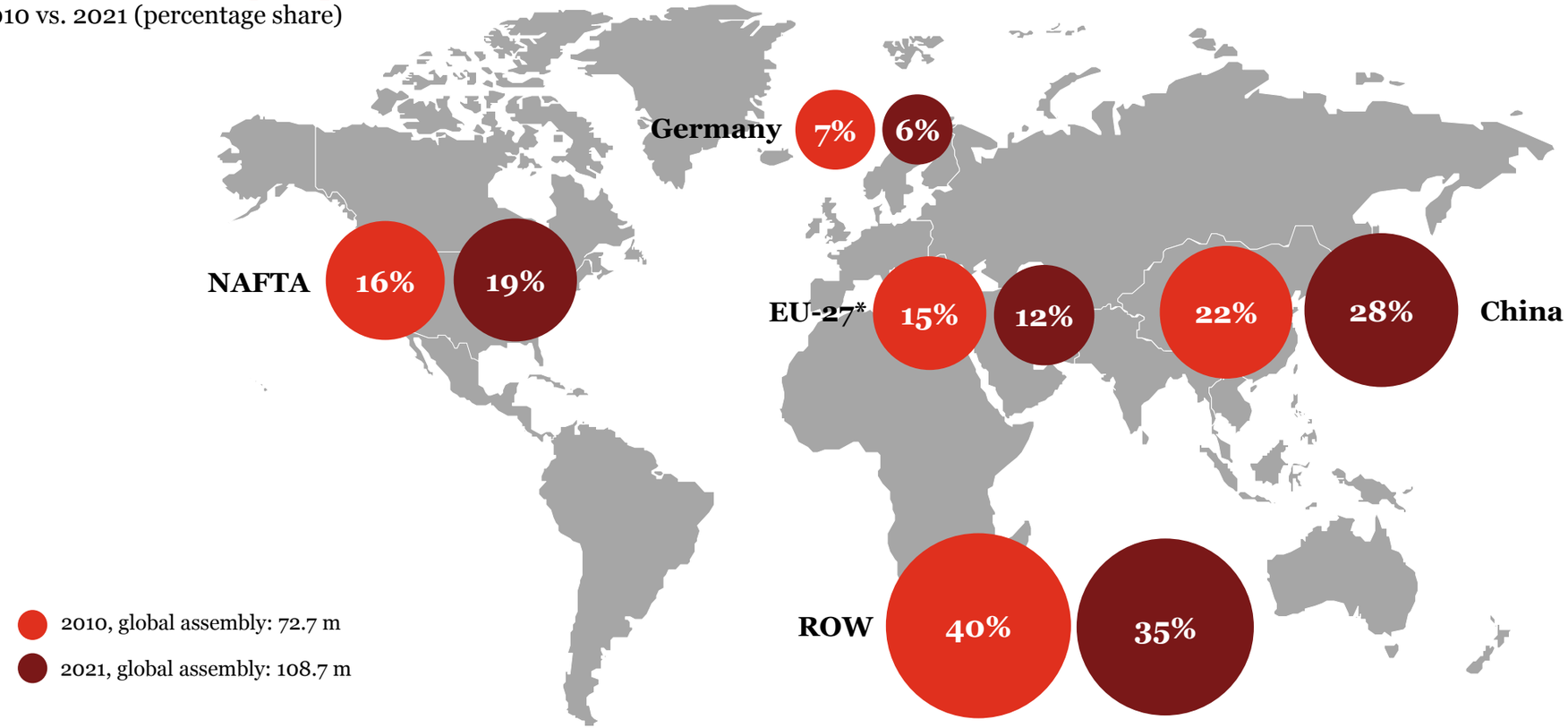
2014 vs. 2021



Source: Autofacts 2015 Q4 Forecast Release *Region size not to scale **CTG = Contribution to Growth

The effect of global growth patterns will be even an greater importance of locations outside of the traditional car building regions

Global manufacturing footprint
2010 vs. 2021 (percentage share)

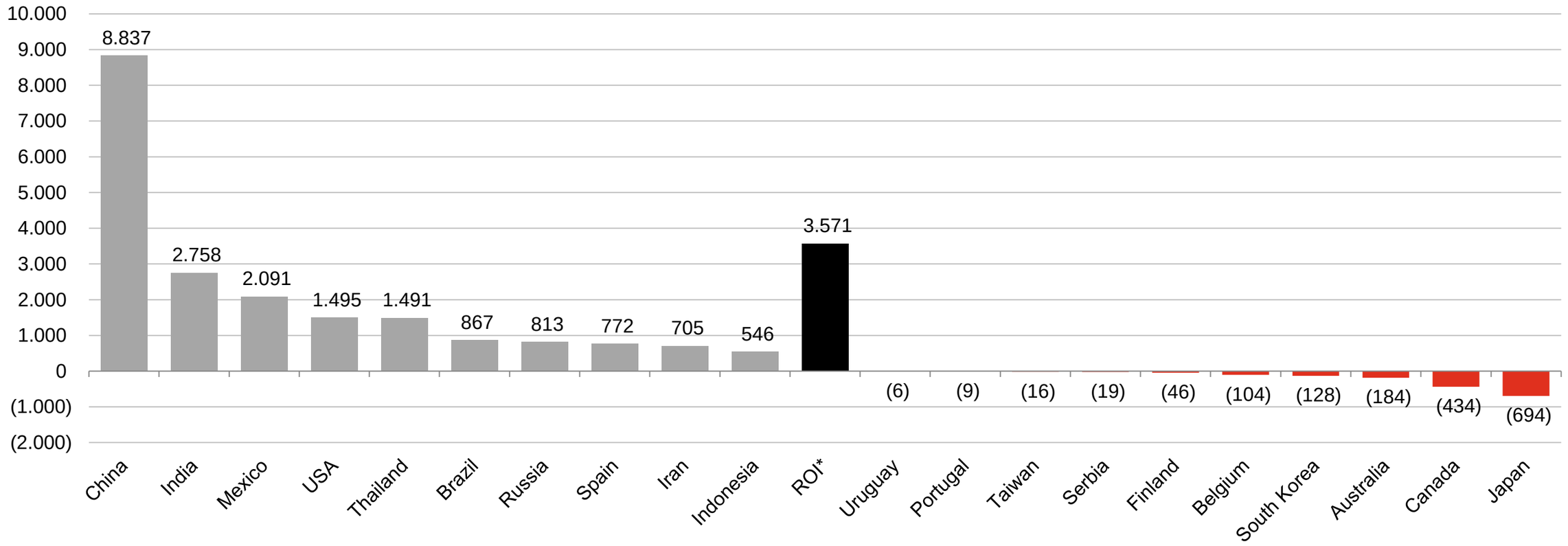


Source: Autofacts 2015 Q4 Forecast Release

At the country level it's clear to see where growth is expected to happen … 8 of the top 10 volume growth countries are classified as emerging.

Top 10 & Bottom 10 Volume Growth Markets

2014 vs. 2021 Variance (thousands)



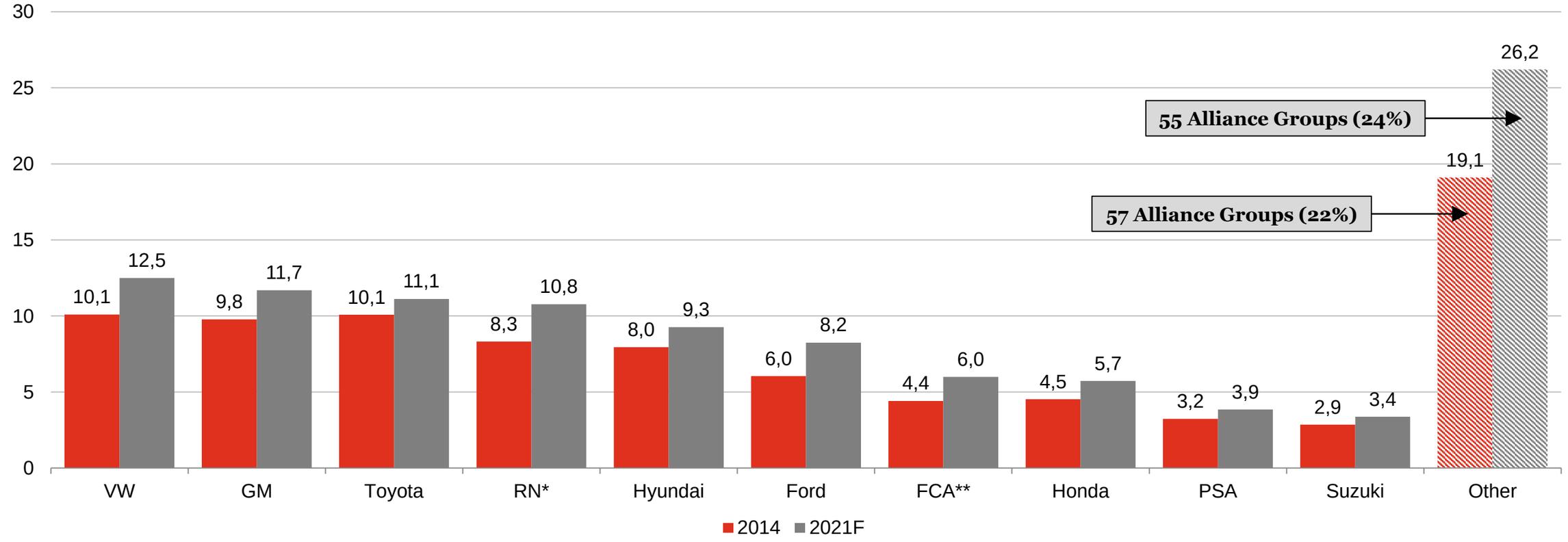
Source: Autofacts 2015 Q4 Forecast Release

*ROI = Rest of Industry

Despite calls for industry consolidation, particularly in China, the global automotive market is expected to remain highly diversified.

Top 10 Alliance Group LV Production

2014 vs. 2021 (millions)

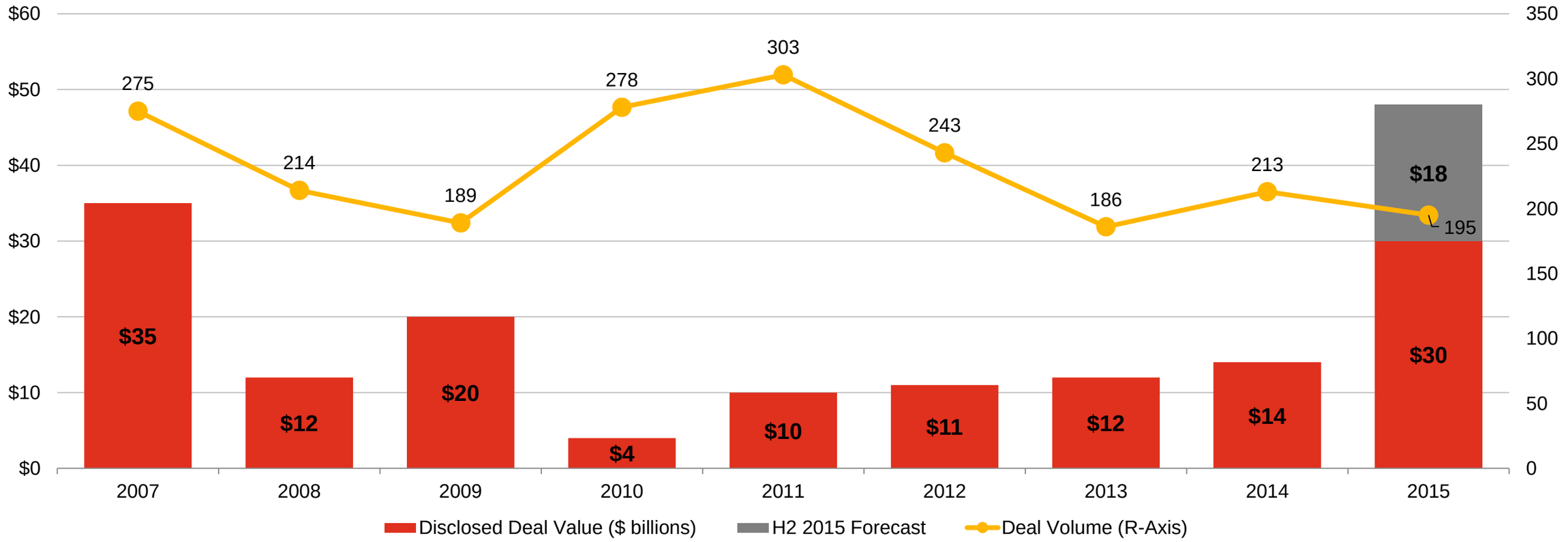


Source: Autofacts 2015 Q4 Forecast Release *RN = Renault-Nissan **FCA = Fiat-Chrysler Automobiles

2015 will likely be a record year for automotive supplier deal value. PwC is forecasting $48bn in closed transactions for the full year.

Component Supplier M&A Activity – Closed Deals, by Year Closed

2007 – 2015 ($ billions)

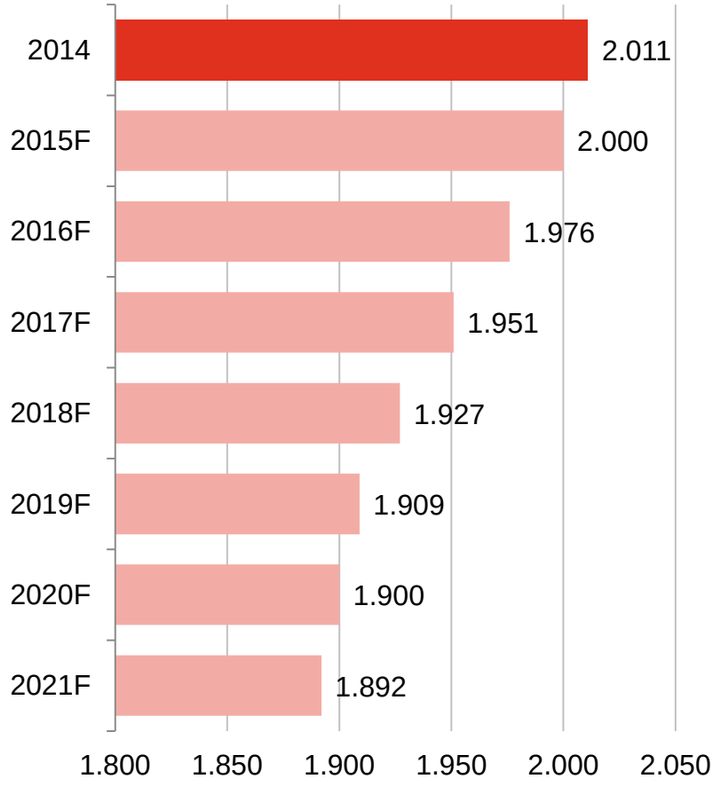


Source: Thompson Reuters, CapIQ, Other publicly available sources, Strategy& Analysis

The market share for alternative propulsion vehicles is forecasted to reach 7.0% in 2021, more than doubling from 2014 (3.2%).

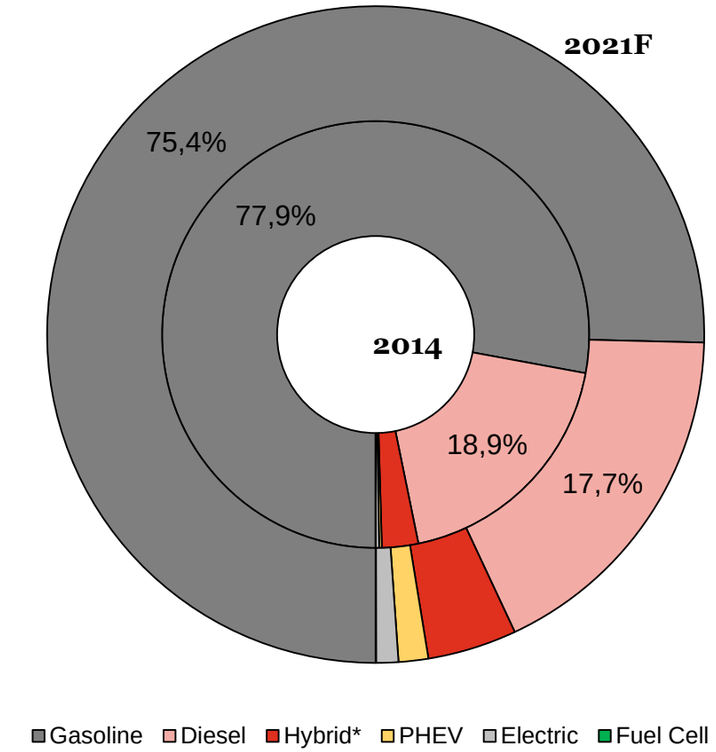
Average Engine Displacement

2014 – 2021 (cubic centimeters)



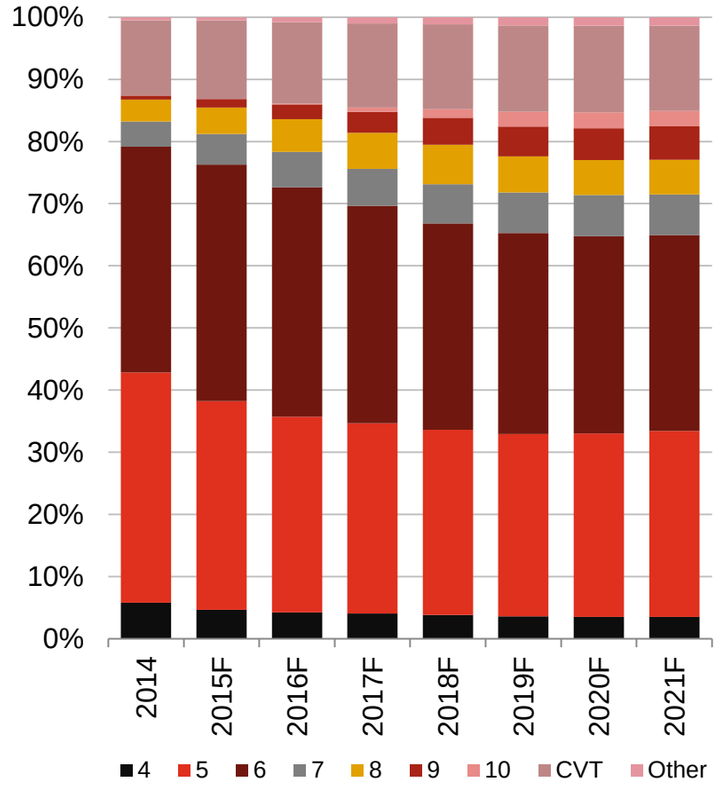
Vehicle Propulsion

2014 vs. 2021 (percentage share)



Transmission Share by Gear

2014 – 2021 (percentage share)

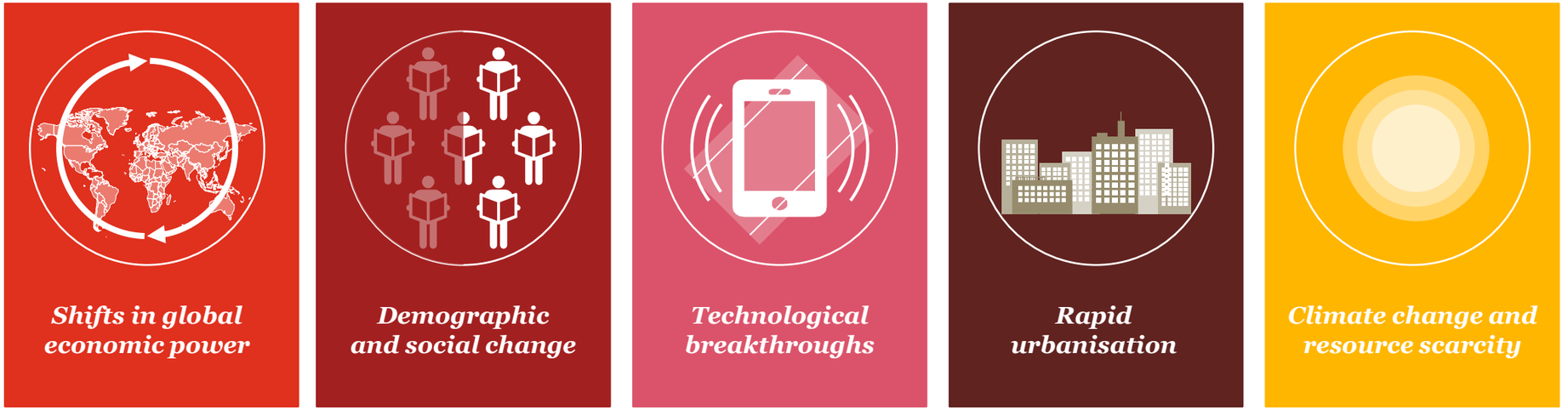


Source: Autofacts 2015 Q4 Forecast Release

*Includes mild & full hybrid

Industry Transformation Scenarios

Five global megatrends are fundamentally disrupting the way we do business, forcing a transformation of the automotive industry



Shifts in global economic power

68%
of companies will have at least one global business unit head based in Asia by 2017

Demographic and social change

The US working population aged over 65 almost doubled between 1990 and 2010 to

3.3 million

Technological breakthroughs

The Sony Playstation of today, which costs

$300

has the computing power of a military supercomputer of 1997

Rapid urbanisation

China's urban population has increased by

400 million

since 1980

Climate change and resource scarcity

By 2030, the demand for energy will increase by

50%

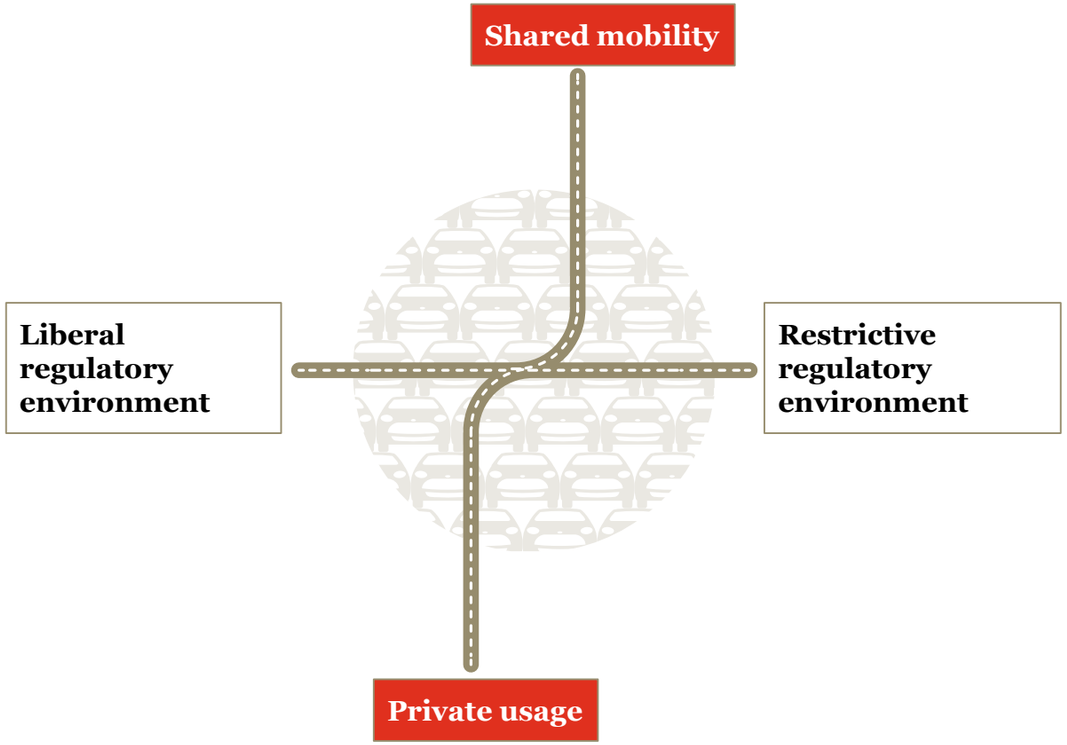
Source: Re-Inventing the Wheel

Two main dimensions map the future paths of the automotive industry environment: Customer Behaviour and Regulation

Consumer behaviour drives automotive sales, so consumer attitudes to cars and to the wider question of personal mobility will shape the future.

This could precipitate a huge increase in car sharing and/or ride sharing. Conventional thinking suggests this will reduce demand for new cars, but could it actually increase it? Individuals may buy fewer cars but Uber drivers or fleet operators will need to buy more.

Technological advances are also transforming the driving experience, from driverless cars to in-car entertainment. Innovation here will be key to success.



Governments have always had a significant influence on the automotive industry, from regulating safety and emissions to restrictions on market access for foreign manufacturers.

China will be a particular factor in the next five to ten years, both in terms of sales and as a location for production. More cars are already being assembled in China than in any other country. If China changes the rules applying to foreign companies (whether by tightening or liberalising), the impact on the sector as a whole will be profound.

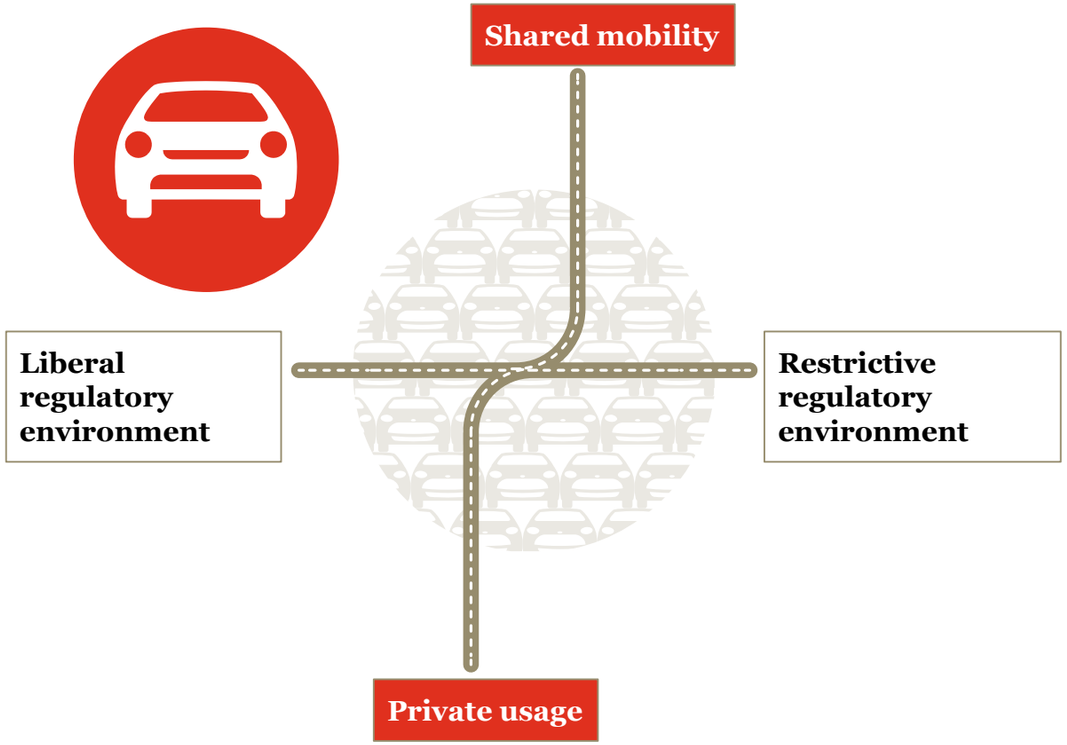
Source: Re-Inventing the Wheel

Four possible future scenarios
Scenario 1: Self driving accelerates – Robot cars take over?

Self driving accelerates

In this scenario, governments give autonomous vehicles the green light, accelerating uptake of this key new technology.

In this scenario, the regulatory environment is positive for automotive companies. Various models for car- and ride-sharing evolve, and compete aggressively. Self-driving technology develops quickly and proves to be safe.



Customer: The typical customers are urban, and manage their transport needs digitally. They value the freedom provided by driverless cars.

Government: Regulations support the development of self-driving cars, and regulate their safety.

Distribution: Sales direct to shared care fleets and operators become more important in some markets.

Competition: Brand loyalty shifts to car-sharing platforms, rather than makes of car, and players from other industries exploit this to enter the market.

Production: New models evolve in the sub-compact, compact, mid-size and luxury segments to meet diverse demand.

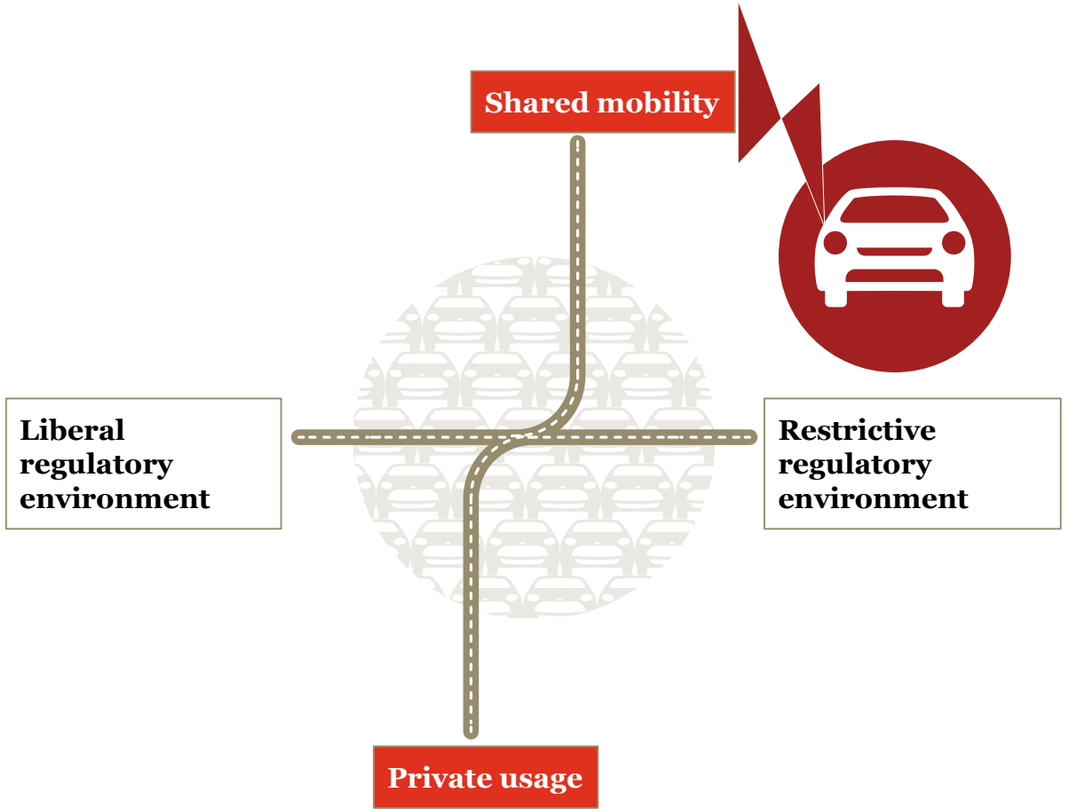
Source: Re-Inventing the Wheel

Four possible future scenarios
Scenario 2: Electric chauffeurs – Benevolent dictatorship?

Electric Chauffeurs

In this scenario, strict fuel efficiency and emissions requirements and a consumer preference for shared mobility drive a shift towards ride sharing models using electric vehicles.

In this scenario, the regulatory environment is much more restrictive, and combines with a stronger shift towards shared mobility. Many potential car buyers use a ride-sharing service instead of buying their own car. Such services are strictly regulated, similar to today's taxis.



Customer: The typical customer is the municipality, driven by the need to reduce congestion and emissions, and provide a more comprehensive electric vehicle infrastructures. Shared fleets also become more prevalent.

Government: Tighter regulations on emissions and fuel efficiency accelerates the adoption of more electric vehicles

Distribution: The major manufacturers are forced to enter into partnerships with fleet managers and the ride-sharing operators.

Competition: There is over-capacity in many markets.

Production: Tough competition and the consequent price pressures lead to leaner operations.

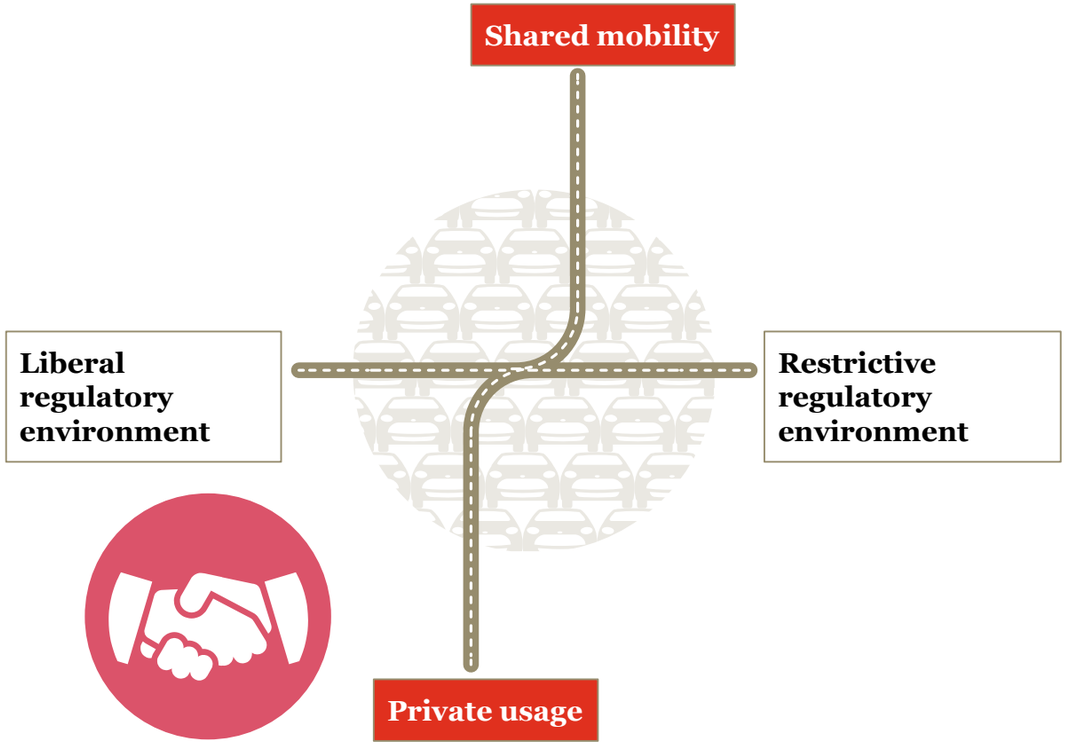
Source: Re-Inventing the Wheel

Four possible future scenarios
Scenario 3: Connectivity creates new champions – Old industry fades?

Connectivity creates new champions

In this scenario, connectivity becomes a key factor in winning over a growing automotive market worldwide. New distribution strategies, new partnerships and potentially new entrants reshape the marketplace.

In this scenario, the regulatory environment continues much as it is, or even liberalises. Car-sharing and ride-sharing do not become mainstream, and remain a niche market. This scenario is closest to the current situation.



Customer: They use digital technology to research their options, and are more willing to buy cars online rather than from dealers. They expect full connectivity in all vehicles.

Government: The regulatory environment becomes more open, with fewer restrictions on foreign operators.

Distribution: Dealerships become multi-branded 'experience centres' to compete with online sales.

Competition: Technology companies see the automotive industry as a new opportunity, and manage to seize key elements of the value chain

Production: China increases exports of its own car brands to other markets.

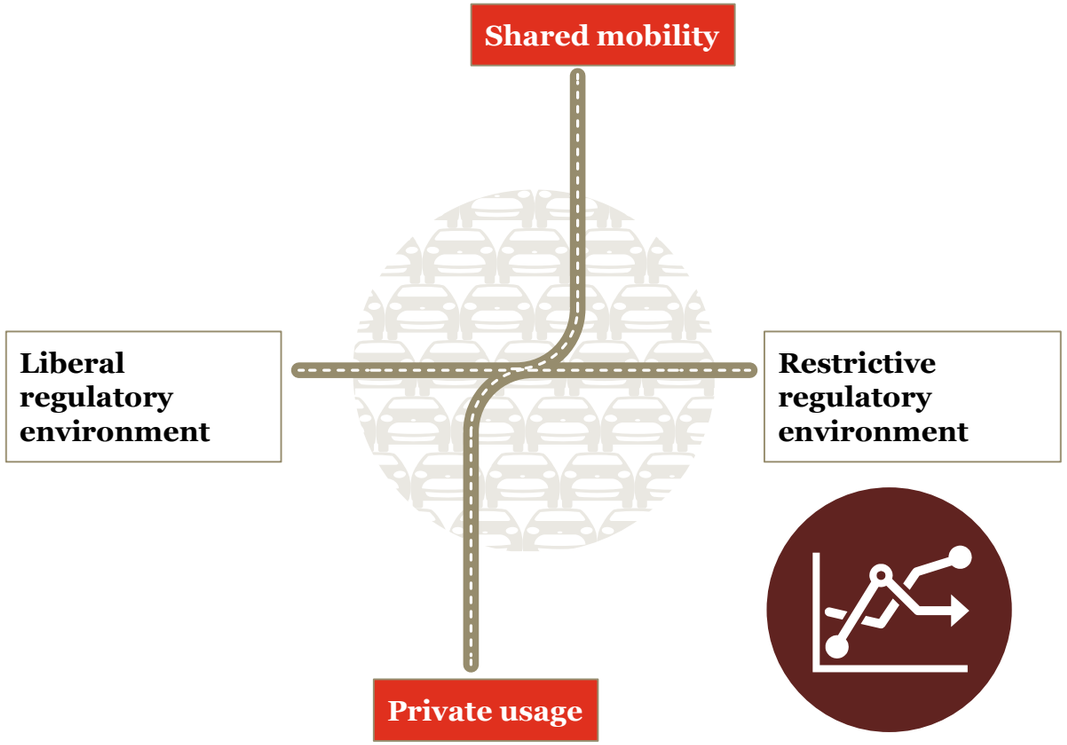
Source: Re-Inventing the Wheel

Four possible future scenarios
Scenario 4: Local business models prevail – the end of global synergies?

Local business models prevail

In this scenario, the established automotive companies need to flex their business models to address very different regulatory requirements in local markets. Operating globally becomes significantly more challenging.

In this scenario, car-sharing remains a small niche while government policies become more restrictive. China could restrict access to foreign manufacturers and there could be tighter rules governing autonomous vehicles, and more stringent fuel economy and emission requirements.



Customer: Customers convert to traditional car ownership as their life stages evolve. Under this scenario their buying habits and preferences remain very different in different parts of the world.

Government: Governments look to automotive companies to help fund infrastructure.

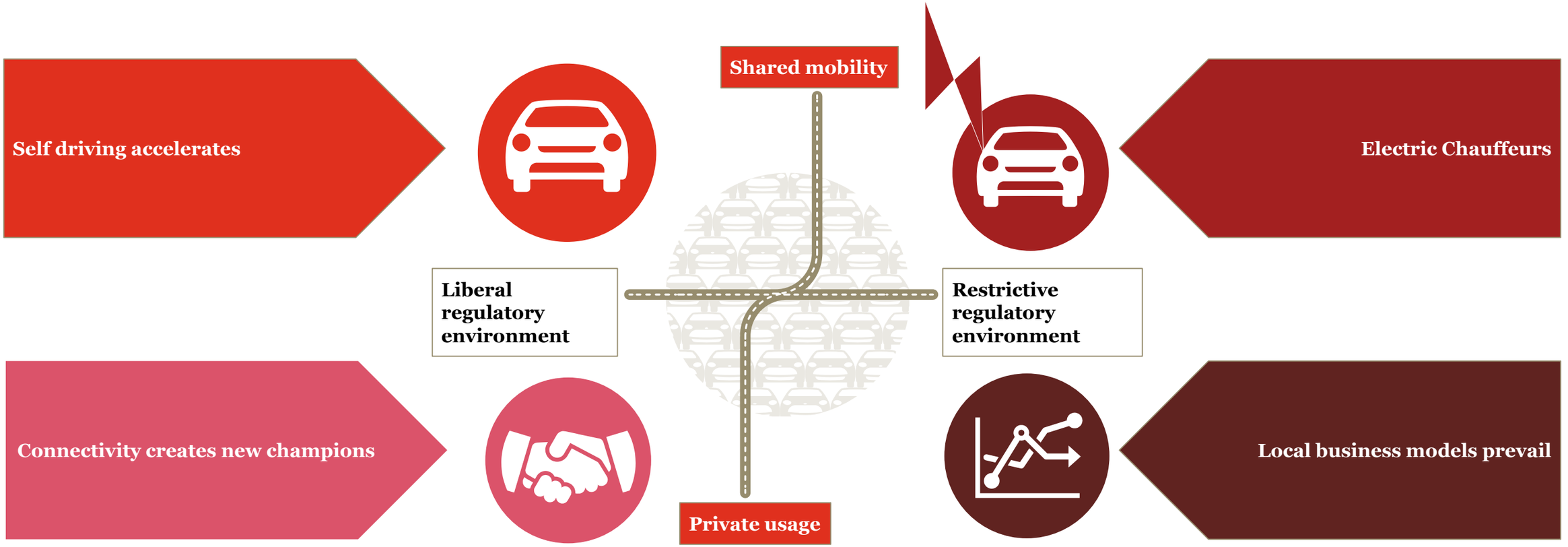
Distribution: The automotive companies operate regionally and tailor their product development and distribution to the individual needs of local markets.

Competition: New and innovative players challenge the established global players at a local and regional level.

Production: Global economies of scale are harder to achieve, and it's also harder to keep all plants running at full capacity.

Source: Re-Inventing the Wheel

What is the scenario underlying your corporate plan? How fit are you for a change of coordinate? Can you serve several scenarios at the same time?



Source: Re-Inventing the Wheel

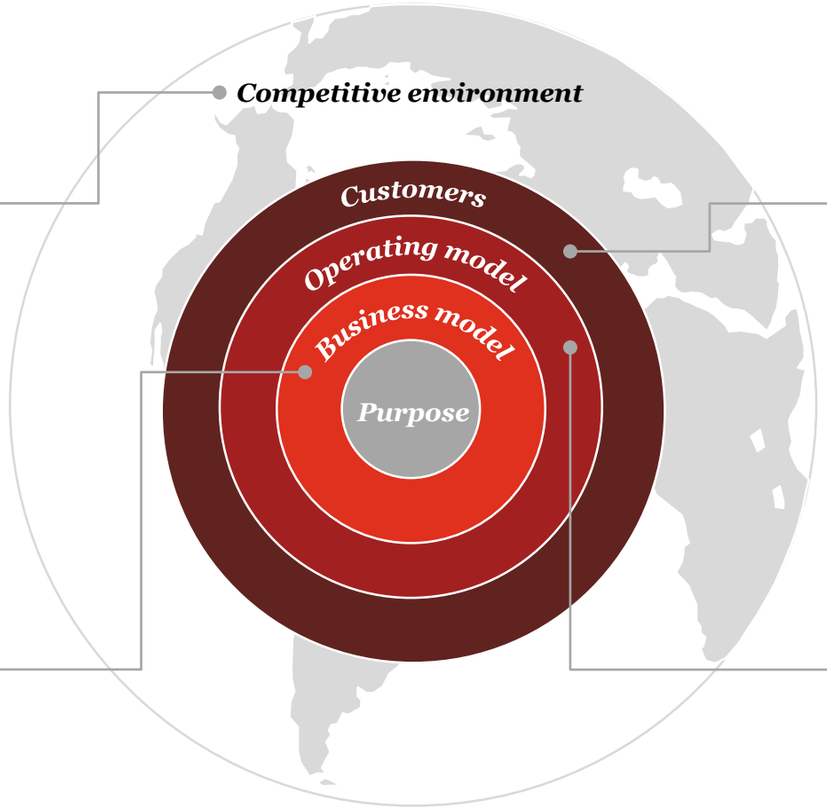
The adaptation to a new scenario should consider all aspects of a company: The future "Way to Play" should deliver a convincing "Right to Win"

Competitive environment

- *How quickly will my market change?*
- *Who are my new competitors?*
- *What is the government doing in order to achieve policy goals?*

Business model

- *What are the new value pools in the market and what should be my focus?*
- *What should be my future business model?*



Customers

- *How are my customers changing?*
- *Which customer segments and geographies do I want to serve and how?*

Operating model

- *How do I align my operating model and culture?*
- *How do I finance this path of change?*

Source: Energy Transformation Toolkit

Thank you for your attention!

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