

Where is the Automotive Industry headed – Electric, Hybrid or Hyper efficient ICEs?

Find the unexpected with Advanced Patent
Analytics

In association with:

EconSight 

&

 ses-tec Switzerland

Presenters



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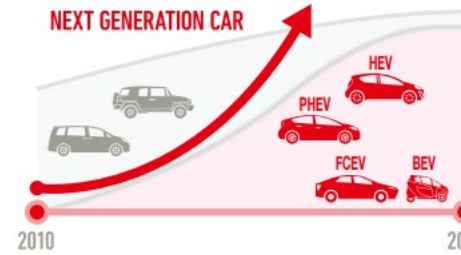


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Changeover to new emissions standard: new Mercedes-Benz passenger cars comply with the Euro 6d-TEMP standard as a minimum

TOYOTA ENVIRONMENTAL CHALLENGE 2050



By 2020, the BMW Group will have reduced CO₂ emissions in the European new vehicle fleet (EU-28) by at least 50 per cent compared to the base

What are the OEMs targeting for?

FCA US Reaches Settlements on Emissions Requirements

MAZDA DIESEL CARS AND THE EURO 6 EMISSIONS STANDARDS

As the World's lowest compression ratio diesel, our SKYACTIV-D diesel engines are fully compliant with all Euro 6 standards, offering clean and efficient engines that are designed to offer you the right engine for your needs

Groupe Renault is aware of the challenges and is using its DNA as an innovative generalist car manufacturer to build its environmental strategy. We advocate a model of sustainable mobility that's broadly affordable and uses high-performance ecological processes.

**Evaluate portfolio strength in specific technologies to gain insights into the current and past trends...
... using Patent Analytics!!**

Challenge #1: Data Quality

Patent data is publicly available



Incomplete ownership information



Errors: Wrong translations and misspellings



Ambiguous legal status information

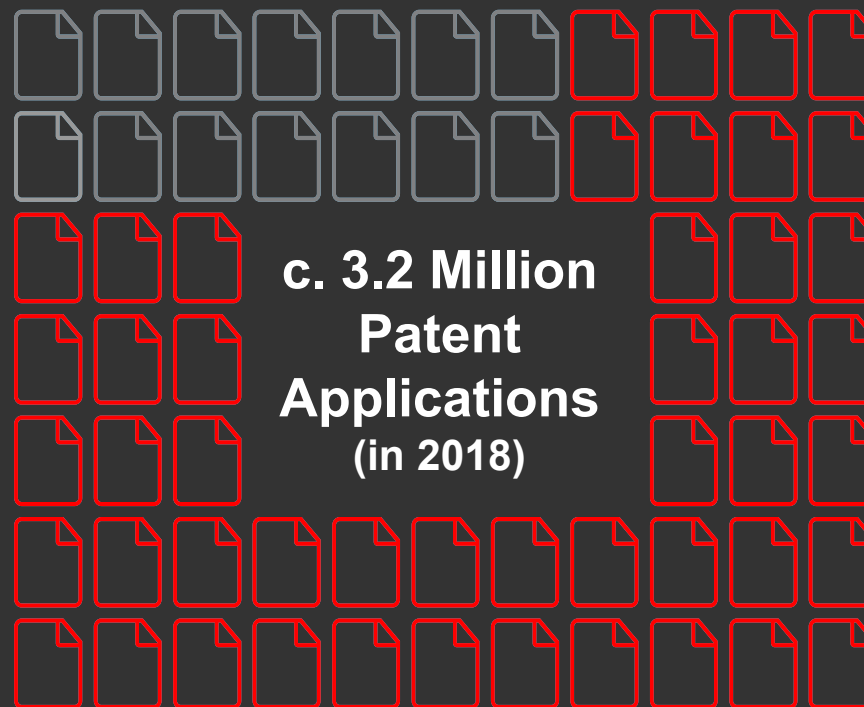
Challenge #2: Data Volume

Global R&D Expenditures 2018



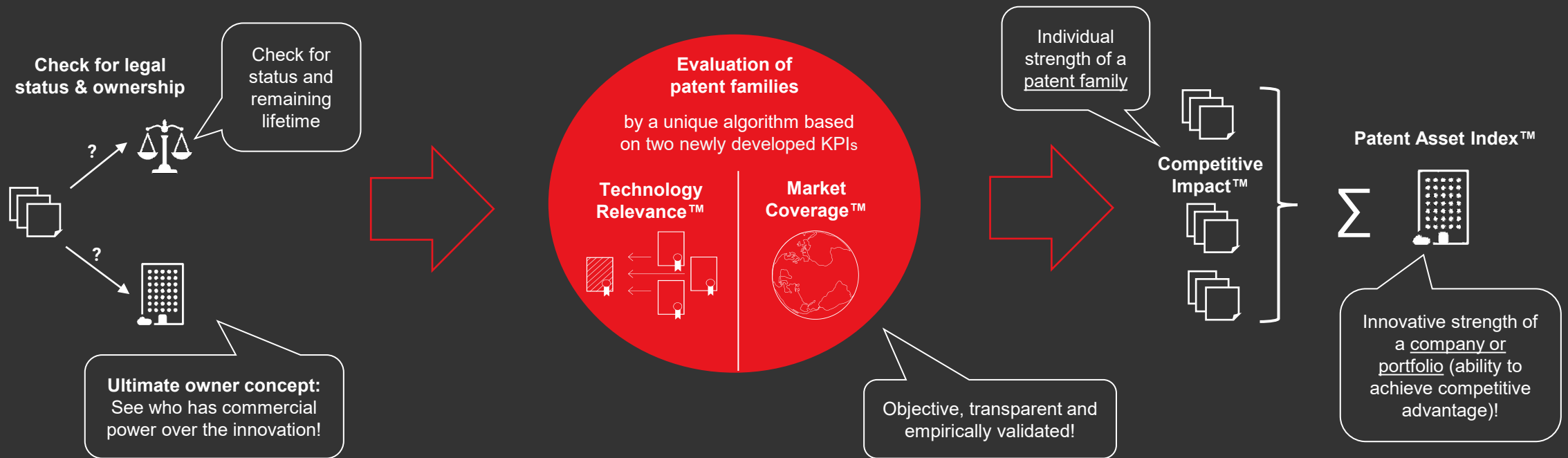
c. 2.3 Trillion USD

About 80% of all
patents have
**no commercial
value**



c. 3.2 Million
Patent
Applications
(in 2018)

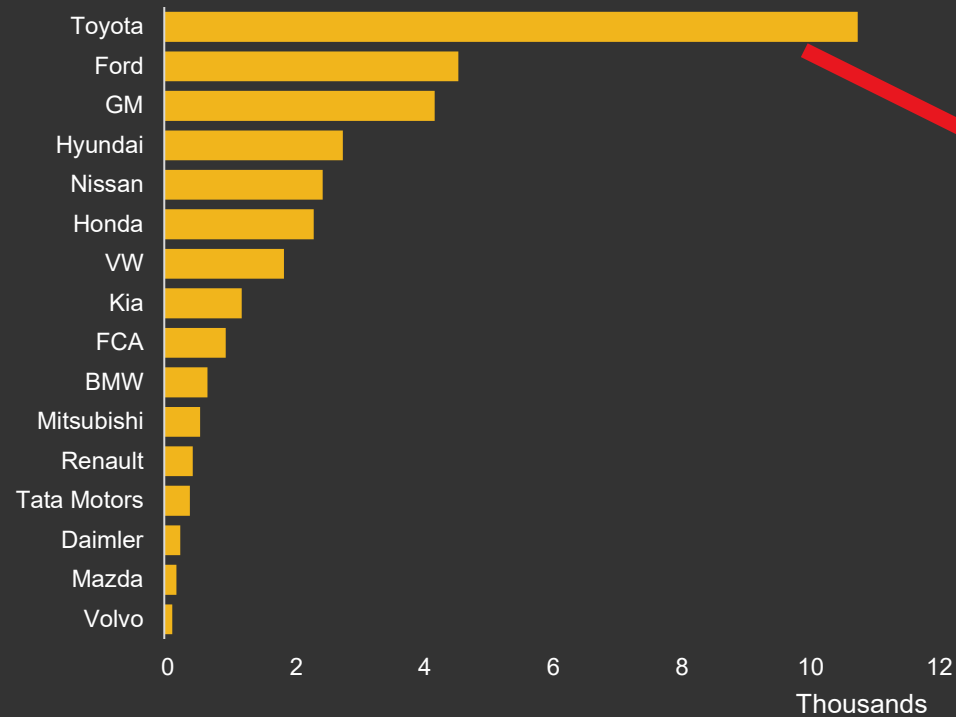
Data Driven Patent Valuation with PatentSight



Comparing portfolio strength and emission targets

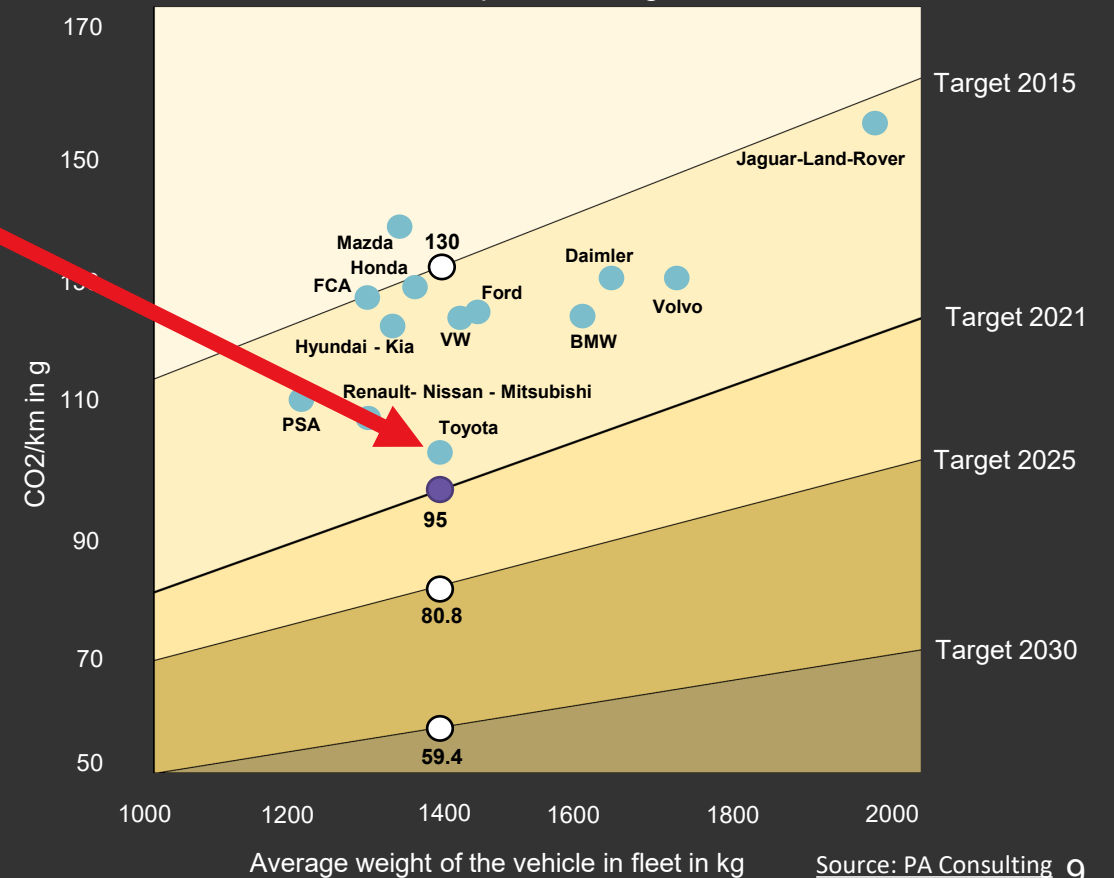
Patent Portfolio in Hybrid Cars

Source: PatentSight

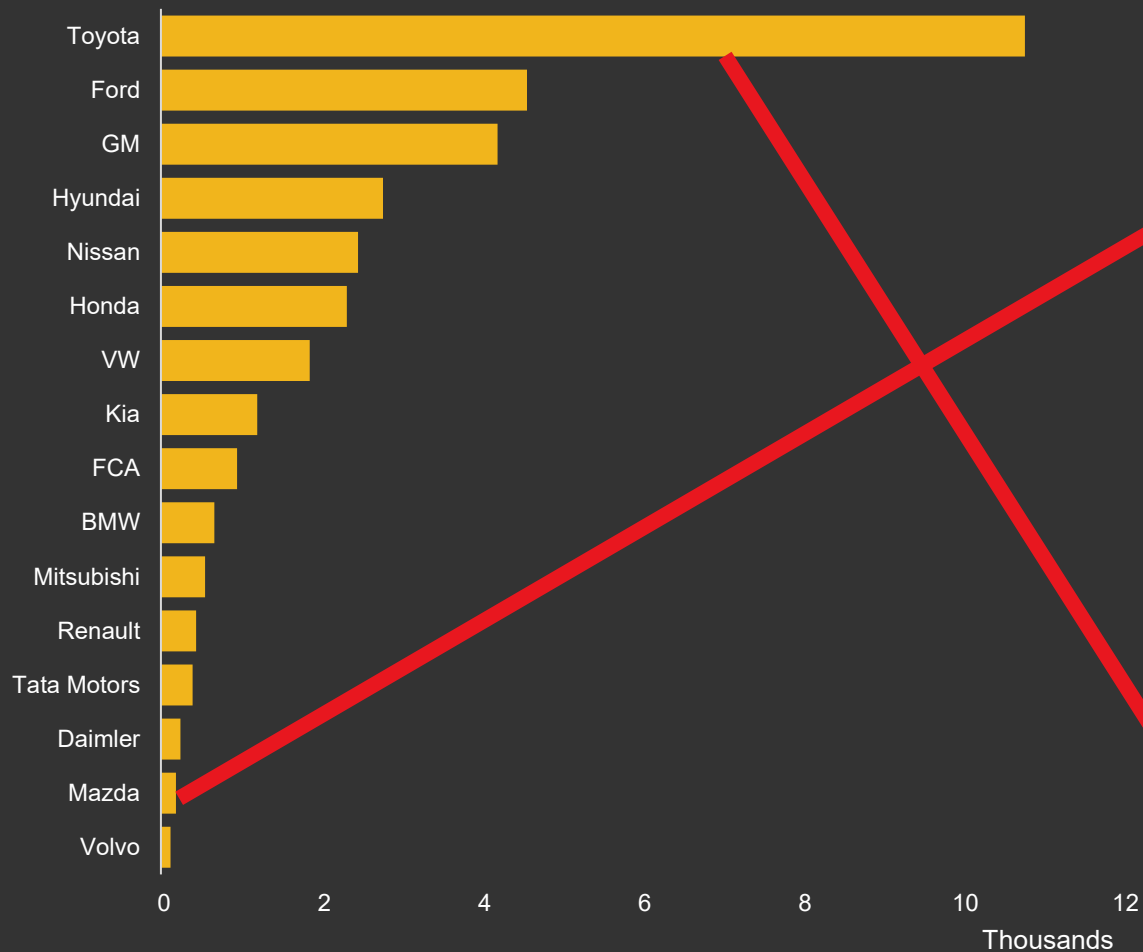


Actual 2018 emissions levels vs EU targets

Source: www.paconsulting.com



EU Penalties are getting high

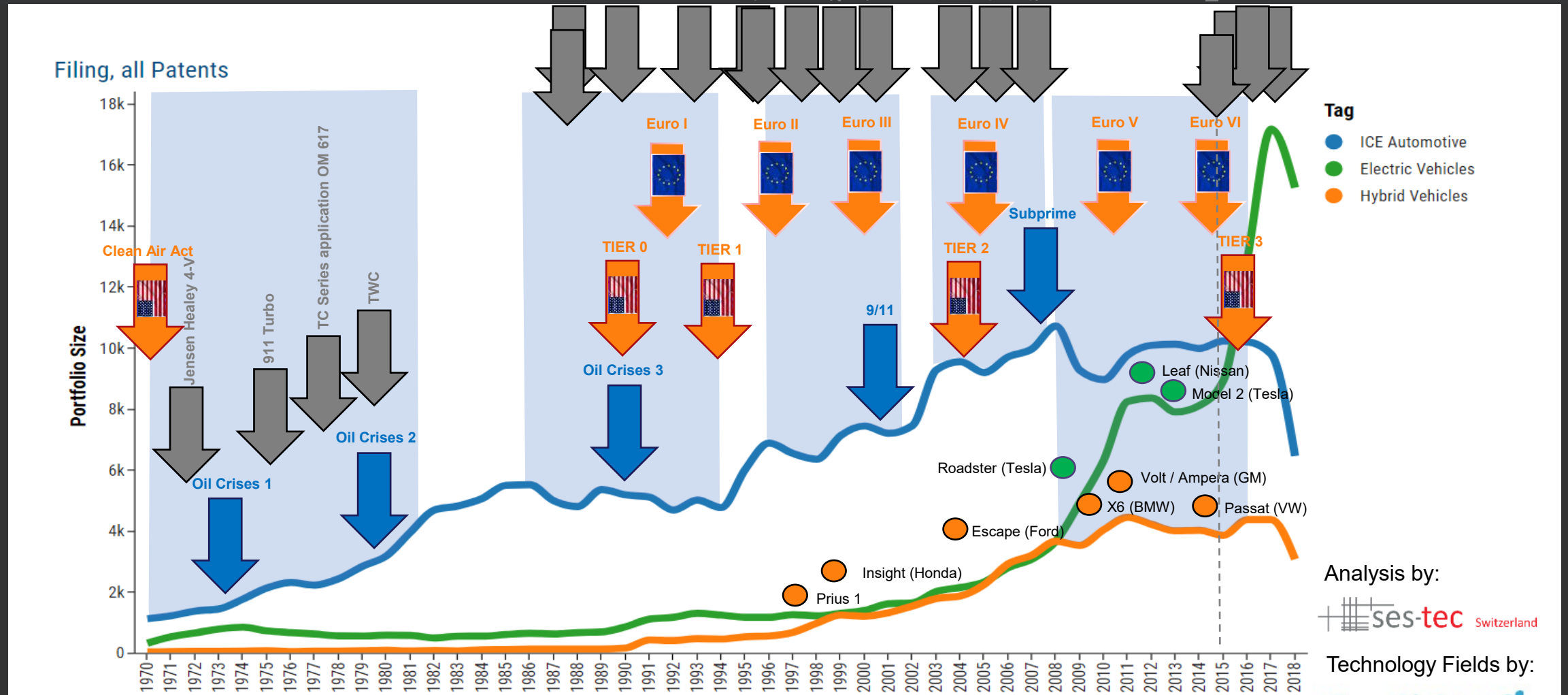


CAR MAKER	DEVIATION	PENALTY (in million €)	PENALTY (in % of EBIT 2018)
Mazda	28.7	877	115.7%
Fiat-Chrysler (FCA)	27	2461	49.5%
Honda	25.2	322	5.5%
Ford	16.2	1456	39.0%
Volkswagen	12.7	4504	32.4%
Volvo	12.5	382	27.6%
Daimler	11	997	9.0%
Hyundai-Kia	7.7	797	28.9%
BMW	7.6	754	8.3%
Renault-Nissan-Mitsubishi	4.9	1057	12.4%
Jaguar-Land-Rover	4.4	93	404.3%
PSA	4	938	21.3%
Toyota	0.2	18	0.1%

Figure: Mazda is furthest from its emissions target, while Toyota has fallen behind its target for the first time

Source: PA Consulting

Timeline

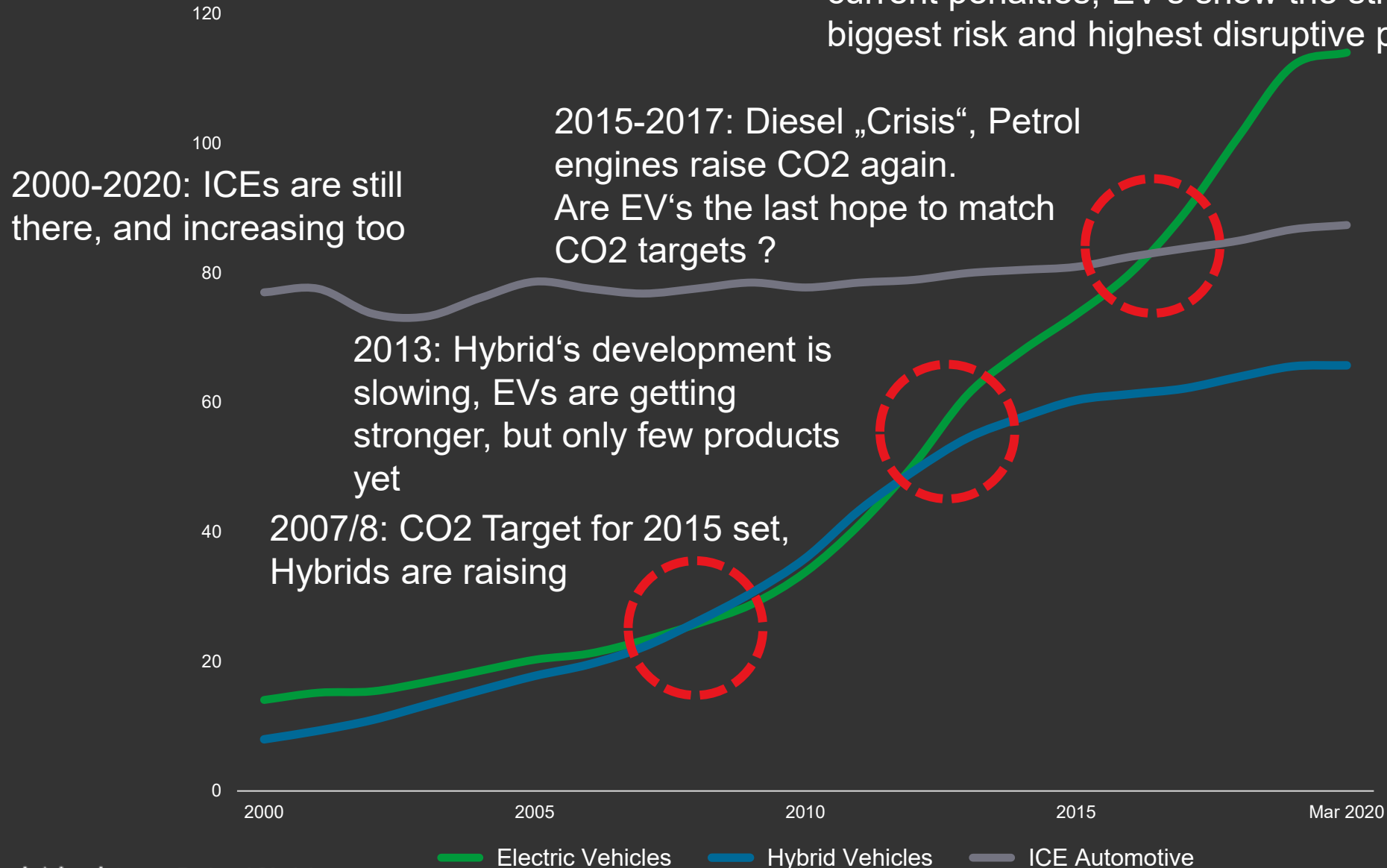


Analysis by:
 ses-tec Switzerland

Technology Fields by:
 EconSight

Summary

Future: While Hybrids seem to be the fastest way to avoid current penalties, EV's show the strongest dynamic, biggest risk and highest disruptive potential



Technology Fields by:



Outlook of the future of low carbon transport

ICE & Traffic Efficiency



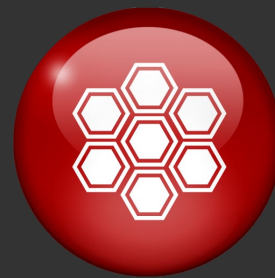
Classic Transport



Heat Insulation



Friction Reduction



Weight Reduction



Autonomous Driving

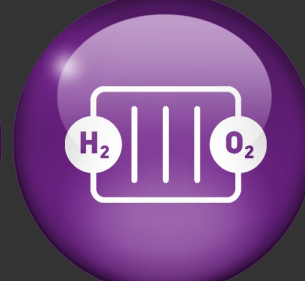


Synthetic Fuels

Renewable Energy

Biofuel

Fuel Cell/ Green Hydrogen



Green Transport

Renewable Energy & New Fuel Sources

Technology Fields by:



Thank You

For more information, please visit:

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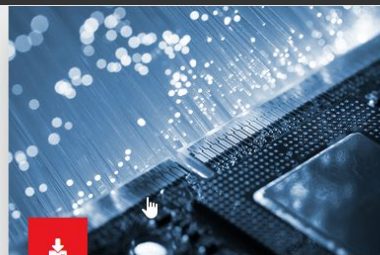
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