

Insight: The Mobility Race - who will win?

On 9 June 2017 Tesla’s market capitalisation passed BMW’s. The gap was over \$30 billion in December 2016. Tesla had already overtaken General Motors and Ford in April of this year. The question is - does this make sense? BMW sold over 2.4m vehicles in 2016, while Tesla delivered less than 80,000. In the same period, Tesla lost c.\$725m and BMW made \$7.7 billion. The story behind these performance indicators is electrification. Will battery power displace fossil fuel, making Tesla the winner?

In this report, we consider this question through an intellectual property (IP) lens.

Batteries - the tortoise and the hare

An electric vehicle held the land speed record until around 1900 (the competition had been pretty intense since about 1830). Range anxiety was met by the launch of a battery exchange service. In 1908, Ford launched the Model T, and the rest is history. The electric vehicle lost because it could not handle distances and was almost twice the price of a Ford. Sound familiar?

The forthcoming resurgence of the Battery Electric Vehicle (BEV) is happening across the automotive sector. What is less clear is whether Tesla will win?

Innovation is the universal fuel

Chart 1 illustrates who is doing what in the BEV landscape. This representation depicts both who owns the most patents relating to BEV, and also the rate of growth over the last 3 years. Ford does well on both counts, but it loses Toyota on sheer size. In contrast, Tesla is nearly bottom of the chart. Those patents that Tesla do own are subject to Elon Musk’s pledge not to aggressively enforce. While the difference in the IP strategies of say Ford and Tesla are apparent from this type of analysis, we need to be cautious before concluding that patents and innovation are not correlated. In the smartphone wars, Microsoft did not prevail but it did extract significant royalties from the Android ecosystem.

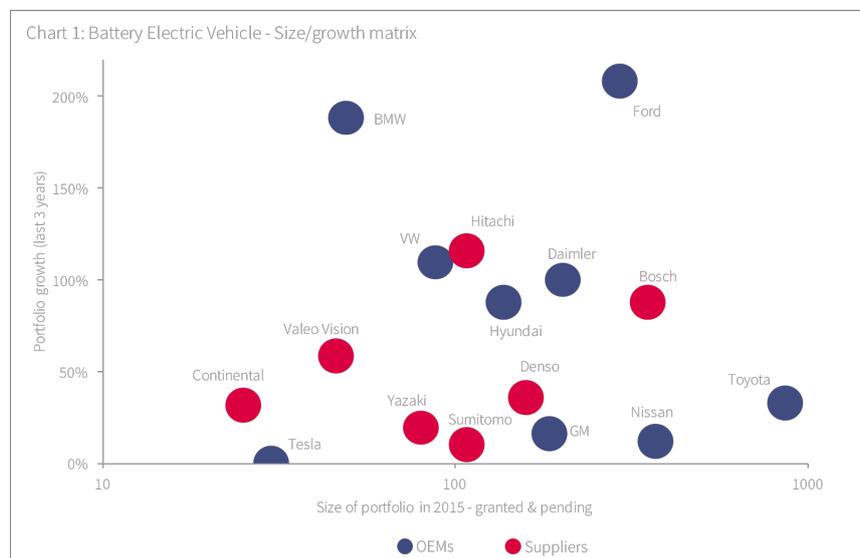
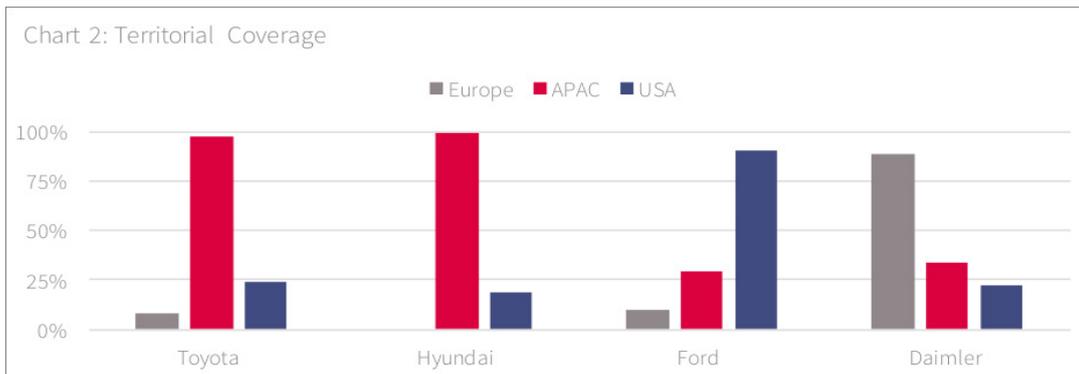


Chart 2 takes a geographic view of a slice of this data. Patenting activity is often a signal of a company’s interest in the technology, but the geographic scope of protection is more likely to determine who takes what share of economic value. This is not something that has historically been important to the OEMs, who have historically had a heavy bias to their home territory. So for Toyota it is Japan, Hyundai/Korea, Ford/US and Daimler/Germany. These strategies are likely to change as patents become currency licensing deals and collaborations.

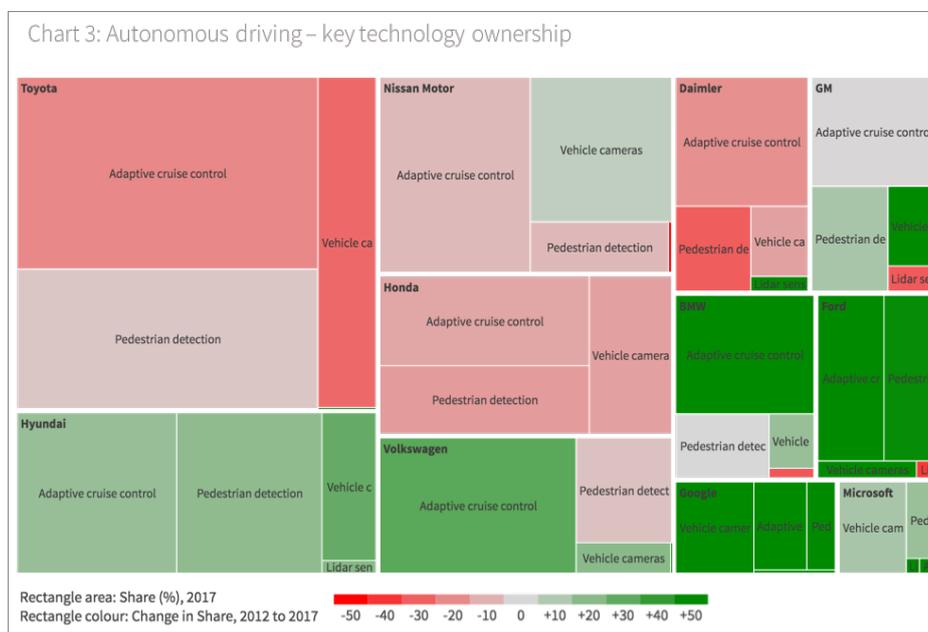


Autonomous driving

While on the subject of economic hyperbole, Morgan Stanley have predicted that Waymo could be worth \$70 billion by 2030. This is on the back of the most significant disruption to driving ever - autonomous vehicles.

Waymo is not alone in its ambition to lead the way. BMW plan to have a car with self-driving capabilities by 2021 (Level 5, being zero input from driver). BMW are working with Intel (who have themselves acquired Mobileye). Ford have set the same timeframe for its self-driving car. General Motors have just announced the first mass production of its autonomous Chevrolet Bolt EV.

Chart 3 is an analysis of market share by reference to the underlying ownership of patented technologies in a few of the key areas that will be important for the next generation of semi-autonomous vehicles (Adaptive Cruise Control, Pedestrian Detection and Vehicle Cameras).



The chart illustrates who is accelerating (green) and who is falling behind (red). Once again, the OEMs are in a very strong position, while the likes of Microsoft, Google, Apple Intel have a much smaller share of the underlying rights.

Understanding the big picture

Our analysis of BEV and a few of the key Autonomous technologies is just part of the big picture. Chart 4 illustrates a non-exhaustive view of the very many technologies that will need to be combined before we reach the ultimate destination of an autonomous electric vehicle.

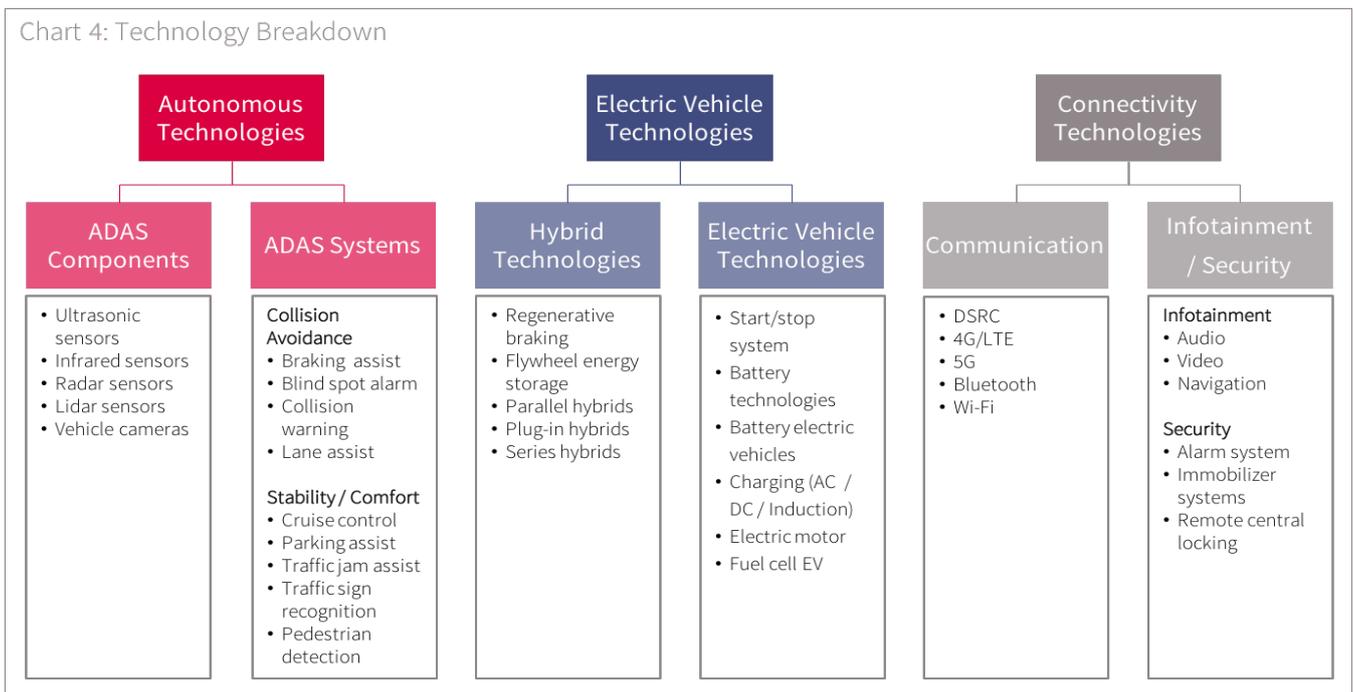


Chart 4 itself is a narrow view of the ingredients that will combine to shape the mobility landscape. If no-one needs to drive, everyone is a passenger which will transform interiors, not only from a design perspective, but from an infotainment perspective also. If ride sharing is the new normal, who will be the customer for the car? The needs of a fleet manager are very different to a regular car enthusiast.

It is this dynamic that is influencing many of the sector deals: Microsoft announced its patent licence with Toyota (March 2017), Intel acquired Mobileye (March 2017), Lyft partnered with Waymo (May 2017). And don't forget about China - VW's joint venture with Mobvoi for its next generation of vehicles.

In times gone by you needed to be able to read the tea-leaves to predict the future. Today we have analytics that can understand the technology landscape through the lens of patent data. This helps companies to identify the collaborations they need, and to allocate the economics fairly.

The evolution of transportation is not a story about Tesla or Waymo, but of disruption on an epic scale. The new automotive ecosystems will look nothing like the existing and long-standing arrangements between OEMs and Tier 1s. But the data is clear. The OEMs are not sitting idly by, and should not be underestimated - or undervalued.

About Cipher Automotive

Cipher Automotive is the first analytics solution designed specifically for those needing competitive intelligence about the automotive technology landscape. By aggregating, analysing and visualising global patent, litigation and licensing data, Cipher Automotive generates interactive reports to get to the heart of who's doing what.

For more information contact info@cipher.ai

The Cipher Automotive Reports underlying the charts in this report are available on request.