

RESEARCH

Tech companies look to accelerate autonomous vehicle growth: report

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Audi's autonomous A7 concept car

By FORREST CARDAMENIS

Mass market automakers are leading the race for autonomous vehicles, but technology companies could shake things up, according to a new report by Intellectual Property and Science business of Thomson Reuters.

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Toyota, Bosch, Hyundai, GM and Nissan have patented the largest number of driverless automobile inventions, and the increased presence at Las Vegas' Consumer Electronics Show Jan. 6-9 has given way to speculation that automakers will form partnerships with tech companies to speed development. Vehicles that drive themselves are still years away from the market, meaning that partnerships with tech companies could cause new leaders to emerge.

"Late entrants will be at a significant disadvantage, but may still have options since they may be able to partner with some of the new companies contributing to the field," said Tony Trippe, senior analyst with the **IP & Science business of Thomson Reuters**. "Having said that certain major automobile manufactures look to be a little late in developing technology in this area, and that could cause them difficulties in the future, unless they find some partners.

"We think there is a close connection in many circumstances between the innovations that are being covered in patents versus those that are beginning to appear in commercial vehicles," he said. "As we mentioned in the report, Ford recently had a patent publish on the Pro Trailer Backup Assist feature that is available as an option in the 2016 F-150. This is just one example of how patent technologies are making an impact on unique selling points of value to consumers.

"The CEO of Ford has also said that 'at the end of the day we don't want to end up as the handset business,' which suggests that the automakers intend to be a key developer of technology in addition to being in the market to acquire them."

"**2016 State of Self-Driving Automotive Innovation**" looks at the number of inventions issued in published patent applications that were granted patents from Jan. 1, 2010 to Oct. 31, 2015.

Take your eyes off the road

Based on the number of patents, self-driving inventions will continue to accelerate in 2016, with around 4,800 expected patents. In addition, since 2013 such patents have been concentrated on autonomous driving rather than

driver assistance or telematics.

Looking purely at autonomous driving patents, Lexus owner Toyota is the leader with nearly 1,500. Denso, its closest competitor, is nearing 700. Daimler, which owns Mercedes-Benz, has less than 200.

Overall, 11 of the world's top 20 self-driving vehicle innovators are from Asia. Automakers far exceed Silicon Valley and other tech companies in number of patents, although many such companies are looking to get involved.

The ongoing Consumer Electronics Show offers many such chances, although the recently rumored partnership between Google and Ford appears to have passed by. Thomson Reuters IP & Science speculates that Apple and Tesla Motors may announce a partnership based on a review of the companies' patent portfolios.

Because Tesla has helped to popularize the electric vehicle, it is a good fit for continued advancements in safety and sustainability. A partnership with Apple would also provide a tremendous boost to the automaker's profile, as it still occupies something of a niche market whereas Apple is among the most recognizable brands in the world.

Apple and luxury automakers have partnered in the past to incorporate convenient, albeit less groundbreaking, advances. Early last year, Italy's Ferrari and Germany's Mercedes-Benz were among the first adopters of Apple's new CarPlay infotainment system that syncs up dashboard and wheel controls to the consumer's Apple device ([see story](#)).

"Our team in the IP & Science business of Thomson Reuters have looked at a possible Apple/Tesla partnership previously, and we think this makes a lot of sense since the companies focus on different, complementary technologies within their patent portfolios," Mr. Trippe said. "Apple has focused on navigation, communications and mobile device integration while Tesla is interested in propulsion, and battery systems.

"There is very little in the way of overlap between the two portfolios, and when combined they stack up nicely against the patents that Google, for instance has developed," he said. "Apple doesn't normally manufacture their own products, even though they design them, so a partnership with a company like Tesla might also make a lot of sense on these grounds."

Other big companies with automated driving patents that could aim to further their involvement include include Amazon, IBM, Boeing and Google, which has repeatedly made headlines for its advances.

Self-driving vehicles are widely seen among the public as the next major enhancement in vehicle manufacturing. The safety and convenience they offer is without precedent, and whichever automaker is the first to sell such a product to the public will almost certainly find themselves with eager consumers pouring into dealerships.

Techmobiles

The automotive sector is continuing to overlap with the tech industries of Silicon Valley, which numerous automakers have begun to leverage.

For example, British automaker Jaguar partnered with Wired magazine to reach a new market segment with its latest innovations.

The luxury carmaker unveiled the XF C-X75 supercar, featured in the most recent James Bond film "Spectre," while the Land Rover brand unveiled its new "Mind Sense," "Air Bubble," "Predictive Infotainment" and "Cargo Sense" technologies. By coupling a hyped vehicle that has wide interest among consumers with technological advances, Jaguar will be able to reach a larger audience when it details its innovations and position itself as a leading adapter of technology in the automotive sector ([see story](#)).

It is also important to note that the number of patents does not necessarily correlate with how close a company is to releasing autonomous automobiles. Recent indications suggest that brands like Mercedes may be far closer to making such vehicles a reality than Toyota, GM, Honda and other automakers with more patents.

In fact, German automakers Mercedes-Benz, BMW and Audi are among the leaders in strategy and execution in autonomous cars, with Tesla and Jaguar a bit further behind, according to a report from Navigant Research released last October.

Although fully self-driving cars may be at least a decade away, pieces of the technology are already being implemented into vehicles today, meaning that the battle to be first is already waging. Because of the safety and convenience of such a vehicle, the first brand to release an effective, fully autonomous car could capture a sizable segment of the market ([see story](#)).

Although the luxury brands may not have the most patents, the size and scale of the field suggests that they are better positioned than the numbers initially suggest.

"BMW and Daimler are well represented in this field coming in at numbers thirteen and seven, respectively, in our study," Mr. Trippe said. "Jaguar is part of Tata, who also owns Land Rover, and together these companies have over 100 inventions in this area, and find themselves in the top 30 organizations in this study.

"Overall there are over 400 companies covered in this data set so anyone in the top 50 has a significant investment in the field," he said. "Bosch is listed as the number two organization in this study, and they supply components to many of the major automobile manufacturers so the [luxury brands] are likely to pick up technology from OEMs as well.

Final Take

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