In the driving seat

The car industry is experiencing seismic changes and, as a result, patents have come further to the fore. Now, some are predicting an increase in litigation, with major players jockeying for position and NPEs sensing opportunities; others, however, are less convinced and see different dynamics at play.

By Richard Lloyd

There is no doubt that the global car industry has entered a period of profound change. From the development of innovations such as hybrid and electric vehicles to the convergence of new technologies such as infotainment systems and new driving aids, long-held business models are being challenged like never before.

With Google developing its own self-driving vehicles and Apple reportedly eyeing up the sector, original equipment manufacturers (OEMs) such as Ford, General Motors and Toyota are facing up to the possibility of a very different competitive landscape in the near future. When one of the questions facing the industry is whether the car parked in your garage will even have a steering wheel in 10 years’ time, it is clear that paradigms are shifting.

In other sectors — most notably parts of high-tech, such as smartphones — that sort of disruption has heralded a breakout of patent hostilities as incumbents and new entrants alike sought to use their intellectual property as leverage over rivals. So far, however, this trend has not played out in the auto space. “Using patents to block and create distractions has not been the nature of the car industry,” says Jayson Pankin, head of Autoharvest, a non-profit organisation that has created an open innovation platform for advanced manufacturing intellectual property, including in the auto sector. Lawsuits between car manufacturers are still extremely rare.

In fact, one of the defining characteristics of the sector, particularly in recent years, has been the close collaboration and partnership between industry players. This, in part, has been a response to the economic crisis, which hit the big three US car makers — Ford, General Motors and Chrysler — particularly hard. But it also reflects the fact that as cars become more sophisticated, it makes more economic sense and helps shorten development lifecycles for manufacturers to share technologies. In one example of this collaborative ethos, Ford has licensed 21 patents from Toyota relating to hybrid engine technology, while the Japanese company has licensed a series of emissions technology patents in return.

“It’s clear that the almost complete vertical integration that used to characterise the car industry is changing to strategies where companies rely more and more on partnerships,” observes Giorgio Rizzoni, director of the Ohio State University’s Centre for Automotive Research. That dynamic has also helped to foster a greater spirit of open innovation, with the likes of Tesla and Toyota opening up all or parts of their patent portfolios for general consumption.

But as the car industry undergoes such a sea change, will this collaboration continue to define the patent landscape within the sector? It is certainly not devoid of disputes. In recent years automakers have become the target of a growing amount of litigation from non-practising entities.
Consumer Electronics Show (CES) in Las Vegas to announce that it was opening up part of its patent portfolio, covering more than 5,500 patents relating to zero-emission fuel cell vehicle technology, for royalty-free use.

Bob Carter, senior vice president of automotive operations at Toyota Motor Sales USA, told the audience that the future development of the technology would require “a concerted effort and unconventional collaboration between automakers, government regulators, academia and energy providers”. That Toyota chose to make the announcement at the CES was telling in itself, reflecting the shift in the industry that has led to more and more consumer electronics products being integrated into the typical car.

The Japanese giant’s announcement followed a similar move by Tesla, whose high-profile CEO Elon Musk announced in June 2014 that his company would “not initiate patent lawsuits against anyone who, in good faith, wants to use our technology”. Ford has also followed suit, opening up its own portfolio of electric vehicle technology patents. However, given that the US car company announced that its intellectual property would be available for a fee, the news looked a lot like it was making it known that some of its patents were available to license.

These announcements have perhaps inevitably attracted some snipes from the industry. “I’m a little bit sceptical about Tesla opening up its portfolio – its

Jayson Pankin, president and CEO, AutoHarvest Foundation
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Bob Carter, senior vice president of automotive operations, Toyota Motor Sales USA

(NPEs) such as Acacia and Marathon Patent Group. There has also been an increase in the number of inter partes reviews filed by carmakers and suppliers as they seek to invalidate those patents being asserted against them. Suddenly the IP strategies of OEMs have become more business critical than ever before.

Open season
In the first six months of the year the car industry produced the kind of steady stream of patent news that is more typically associated with the faster-paced high-tech sector. In January Toyota chose the
prevailing patent dynamic is changing. More patents in the kinds of portfolios that RPX and IV boast are now directly relevant to the industry. According to RPX’s Max Straube, vice president client development, who has led the push into the sector, the defensive patent aggregator’s interest in the sector was piqued four or five years ago as more high-tech inventions converged on the auto sector. “The adoption and integration of a wide range of technologies has created significant NPE litigation overlap with our existing members” he says.

Riding shotgun
But it’s not just by opening up their portfolios that car manufacturers are transforming the patent landscape. In February RPX revealed that it had signed up Ford as its first automotive member. This was quickly followed by news that the US car giant had also signed a licensing deal (the first automaker to do so) with Intellectual Ventures (IV) to gain access to its more than 40,000-strong patent portfolio. Crucially, that deal also gives every Ford supplier a sub-licence to the portfolio.

Then, in March, Ford and Mazda announced that they had signed up to the License on Transfer (LOT) Network, the initiative backed by the likes of Google and Canon which aims to protect members from patents that end up in the hands of NPEs. The desire of car manufacturers to strengthen their defences against NPEs also helped Unified Patents to put together its first zone dedicated to the auto industry, which gives members information on the main patent threats they face and takes action against specific NPE-owned patents through inter partes reviews.

For RPX, IV, the LOT Network and Unified – all organisations more typically associated with other parts of the market, particularly high tech – their growing reach in the industry says much about how the
Auto revolution

Who’s driving?
This technological development points to what will perhaps be the defining trend for the future of the car industry: the rise of autonomous and self-driving vehicles. Autonomous vehicles keep the steering wheel, but introduce more functions designed to help the driver, such as parking assistance. The industry has been introducing greater autonomy in cars for years, but this trend will only accelerate and may well leave existing OEMs in control of the market.

Self-driving technology means effectively that the car drives itself. It is perhaps most famously being championed by Google and might also lead Apple to move into the industry. For existing manufacturers, this represents a significant challenge to their business models. According to a recent research note by an analyst at Raymond James, which was reported by Business Insider, car industry executives now regard Google and Apple as their enemies.

Of course, those two tech giants drove much of the patent litigation in the smartphone industry as they challenged incumbent operating companies such as Nokia, BlackBerry and Ericsson. That new entrants represent a threat to the status quo in the car sector seems hard to doubt. Whether this will lead to the same patent-fuelled disputes is another matter. There are some obvious similarities, but

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Figure 1. Automotive inventions by publication year

Source: Thomson Innovation & Thomson Reuters Derwent World Patents Index

Figure 2. Top automotive patent assignees from publication year 2009 to 2013 based on number of individual inventions

Source: Thomson Innovation & Thomson Reuters Derwent World Patents Index
Auto revolution

Also some clear differences between the two markets.

Although Google declined to comment for this article, the company’s lead counsel for mobile/Android patent strategy, Josh McGuire, spoke at a recent event on patents in the car industry organised by the Licensing Executives Society in Silicon Valley, which IAM attended. At that meeting, he pointed to one characteristic of the self-driving sector which makes it very different from most high-tech areas.

“Automated driving is incredibly complex and Google is very conscious of this; we don’t want to introduce a partial solution which then goes horribly wrong,” he explained. As other industry participants and observers point out, the barriers to entry in the car sector are very significant because of the complexity of the technology and because of safety issues. “It takes three to four years to develop a new car model and OEMs then guarantee the safety of the vehicle they have made,” comments Hyundai’s Lim. “I expect traditional OEMs and newcomers are going to have different roles rather than being direct competitors.”

This does not mean that a company as rich or as savvy as a Google or an Apple cannot break into the sector, but it does mean that the pool of businesses which have the wherewithal to do so is fairly limited. “It’s not like in smartphones, where you can have a company like Xiaomi come out of nowhere,” Shawn Ambwani, COO of Unified Patents stresses.

“Automakers have to satisfy a lot of regulations when it comes to safety,” adds Rizzoni. “That’s an environment that doesn’t lend itself to the kind of small, nimble organisations that thrive in high-tech.” He points out that a big part of the reason why self-driving and autonomous driving have really started to take off is that some of the regulations, particularly in US states, have been relaxed.

As OEMs face the prospect of new rival companies pushing self-driving vehicles, and with ride-sharing apps such as Uber threatening car sales, there are also trends towards significant consolidation in the sector. Earlier this year it was reported that FiatChrysler’s Sergio Marchionne was actively pursuing a merger with GM. His approach has so far been rebuffed, but most observers expect deals to happen among the 15 largest manufacturers. Such consolidation, along with the possible entry of Google into the sector, creates the greatest question marks over what the patent landscape in the industry will look like in the long term.

That degree of flux, if high-tech is any guide, typically sees companies looking more closely at monetising their patents and leads to more patents being sold. Even if this will not result in a patent war along the lines of Apple v Samsung, it does suggest a far less settled picture than most OEMs have been used to so far. “Some people in the car space are very worried about commoditisation (brought on by the likes of Google), and that alone is enough to foster more patent transaction activity,” Acacia Research CEO Matthew Vella comments.

Perhaps one of the biggest advantages

“Tectonic shifts have rocked the industry as it struggles with the lightning development of new technologies in areas such as hybrid and electric vehicles.”
that IP executives in the car industry enjoy when it comes to adapting to the new forces at play is that they have a clear example to learn from. “We are looking at what has been happening in consumer electronics in the last few years,” admits Daimler’s Hähner. “I don’t know the solution yet; but sure, we don’t want to go the same way.”

To compound things, today’s patent assertion landscape in the United States is also very different. The introduction of new review procedures under the America Invents Act, which enable defendants to more easily challenge the validity of patents; a string of Supreme Court decisions in cases such as Alice Corp v CLS Bank; and the prospect of further legislative reforms have made the climate far tougher for patent owners looking to assert their intellectual property. As Doug Croxall, CEO of NPE Marathon Patent Group, observed: “You didn’t have the Alice decision or the new America Invents Act re-exams during the height of the smartphone wars.”

On the attack
The assertion climate might have darkened, but OEMs and their suppliers have still been confronting some challenges that are all too familiar to those in the tech sector. Large-scale litigation between OEMs may not yet have broken out, but the car industry has still seen a growing number of patent infringement suits in the United States in recent years. According to data from Unified Patents, 83 lawsuits were filed in 2012 in the United States against the largest OEMs and automotive suppliers. That number jumped to 160 in 2013 before falling slightly in 2014 to 154.

According to Unified, the vast majority of those suits were brought by NPEs – 94% in 2013 and 88% last year – no surprise, given that OEMs rarely sue each other. But car manufacturers have also been fighting back using the new *inter partes* review procedures to challenge the validity of the patents being asserted against them.

The Unified data reveals that parts supplier TRW Automotive has filed the most *inter partes* reviews since 2012, with...


**Action plan**

- As the pace of technological change in the car industry has accelerated, recent patent strategy trends among the major players have been characterised by collaboration and partnership.
- A rise in NPE activity in the sector has seen both patent infringement suits and *inter partes* review filings increase.
- Although the car industry is yet to see the same level of disputes as the smartphone sector, as competitive pressures build OEMs and suppliers may start to use intellectual property as leverage over rivals.

50, followed by Ford and Toyota with 35 apiece. This might not be at the same level as the largest tech companies (Apple filed just over 60 *inter partes* reviews last year alone), but this has clearly become a popular tool for confronting the NPE threat.

Among the most prominent NPEs, both Acacia Research and Marathon have acquired portfolios in the sector as they have sought to take advantage of the convergence of new technology in the typical car.

There are also many parallels with the high-tech sector in terms of where patents are being acquired from. Acacia, for instance, picked up more than 300 patents in 2012 from Automotive Technologies International, a patent-rich but small company ill suited to taking on the large OEMs in protracted courtroom battles.

Marathon’s assets, meanwhile, have come in part from Delphi – in 2013 the NPE bought a portfolio of 17 patents from the car parts supplier for $1.7 million. The deal shows that, despite the challenge that NPEs pose to the sector, some of the incumbent players have been happy to sell assets to them (Delphi declined to comment for this article).

As Acacia’s Vella points out, the car industry is younger than smartphones in terms of patent assertions; but he still sees some similarities, with a small group of OEMs and then a long supply chain. That said, when it comes to licensing in the car sector, some principles remain the same. “The best way to think about licensing is to look at individual companies and how they’re each situat[ed],” he suggests.

**Split in two**

Analysis of the patent and wider business dynamics in the car industry reveals a clear dichotomy. On the one hand, there are examples of collaboration and partnership, which have become crucial as manufacturers and suppliers try to get more products to market faster.

Seemingly horrified by the patent wars that dogged the smartphone industry, companies are also opening up their portfolios, encouraging others to make fair use of their technology on a royalty-free basis. Plus, the likes of RPX, LOT and Unified Patents are providing access to different levels of protection from the growing threat of NPE litigation.

But on the other hand, tectonic shifts have rocked the industry as it struggles with the lightning development of new technologies in areas such as hybrid and electric vehicles, and the threat of possible new entrants such as Google and its self-driving car. When an operating company faces those sorts of challenges, the prospect of using intellectual property as leverage over competitors becomes much more enticing.

“One of the biggest differences with the car industry is that you don’t have Moore’s law,” Vella points out, referring to the famous prediction in the IT sector that computing power will double every 18 months. “It’s not that things don’t change; it’s just not as fast as in high-tech.” There simply isn’t the same density of platforms as in the tech industry, where patented inventions stretch across billions of smartphones, tablets and laptops. With cars, we are talking about millions, not billions.

Perhaps the twin dynamics of collaboration and flux can co-exist. As Autoharvest’s Pankin puts it: “Yes, there will be rivalries and competition; and yes, companies will fight for business; but I think people are more aware that they can cooperate and still compete.” For anyone who has been involved in the patent sector for the last decade, that makes for a refreshing change. And for all the talk of the numerous challenges that the industry faces, for some OEMs, a few things will always hold true. Daimler’s Hahner, for one, insists: “We’re not thinking of getting rid of the steering wheel.”

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