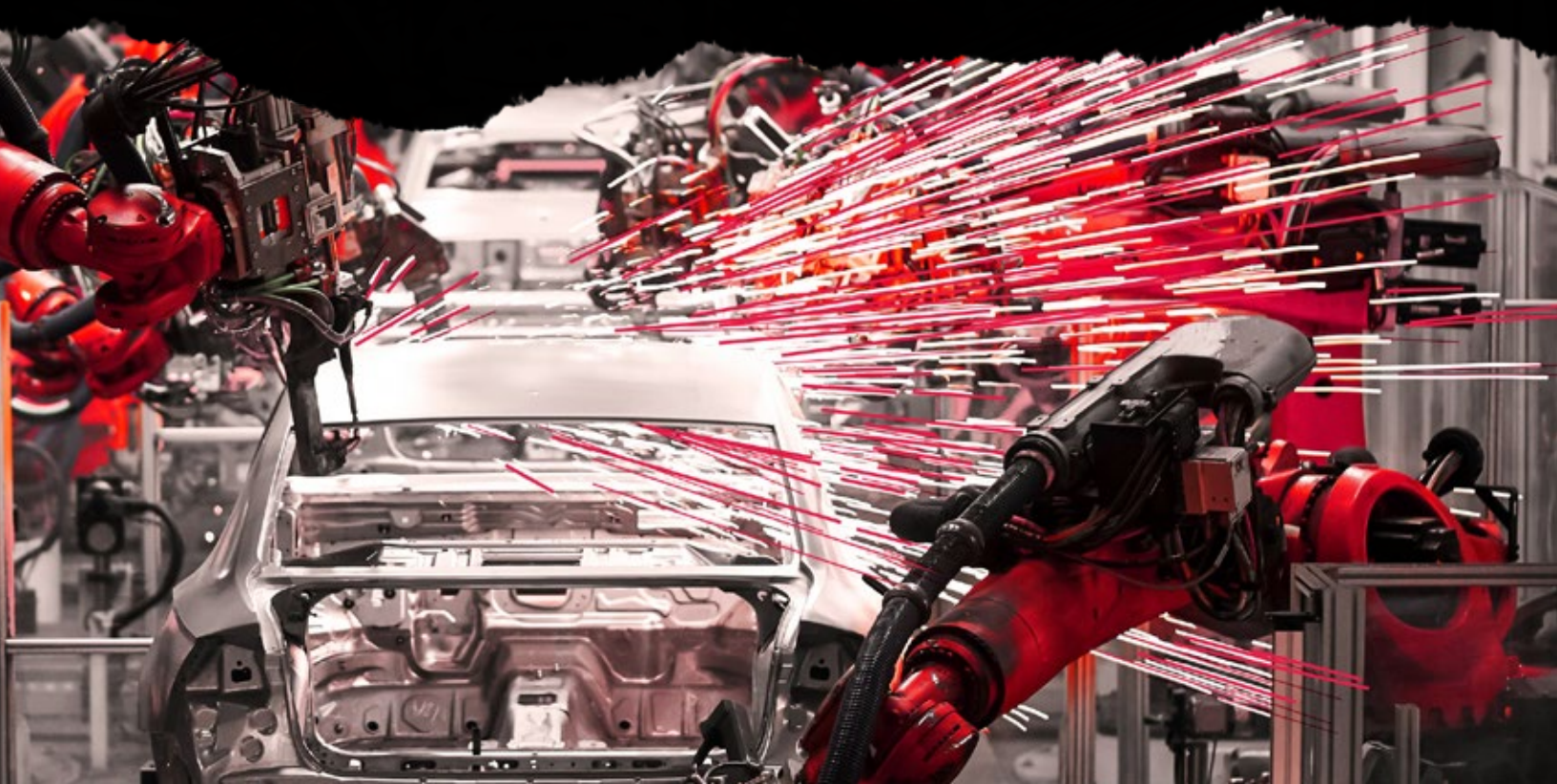




VOLUME 1

The UnitedLex Automotive U.S. Patent Lapse Analysis

Tesla grows its portfolio as Elon Musk declares “patents are for the weak”



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Executive summary

Over the last decade, Tesla has expanded its electric vehicle patent portfolio, amassing approximately 3,000 globally and 1,000 in the United States through 2021. While holding only a fraction of the patents held by large combustion engine OEMs, important metrics indicate Tesla adjusted its patent management strategy leading up to 2016. In this analysis, we explore how Tesla’s approach to patent management seems to contradict public statements made by its CEO, how shifts in Tesla’s patent lapse rate show a stark contrast before and after 2016, and how Tesla’s portfolio growth differs from the rising patent lapse tendencies of top combustion engine manufacturers.

This analysis is part of the UnitedLex Automotive U.S. Patent Lapse Series. Throughout the series, we will profile unique patent lapse trends and portfolio management decisions of top OEMs and suppliers before offering a more detailed analysis of the U.S. automotive industry through the lens of patent data. Alongside the lapse rates of these automotive powerhouses, we analyze filing trends and litigation data to highlight opportunities for improvement and counterintuitive trends taking shape.

Budget boosters

Strategic lapsing of a company’s patent portfolio is among the greatest cost-saving levers available to intellectual property (IP) departments. Companies with large portfolios that strategically pull this lever regularly save 20-30% of their annual patent renewal fees. For a large automotive manufacturer, this could range from \$2-\$4 million per year in renewal fees. Reinvesting these savings can create a snowball effect for businesses, allowing them to optimize their entire approach to IP, strengthen their IP position, and reduce associated costs.

Refocus

This analysis illustrates the power of data to improve decision making and how patent lapse data can help IP teams modernize their approach. Economic headwinds heighten the urgency to find new efficiencies throughout organizations, and corporate legal teams are refocusing financial goals away from cost reduction in favor of a more holistic view of efficiency that includes value creation and quality of work. Patent lapse, filing trend, and litigation data can help IP teams contribute to these goals with insights that improve portfolio ROI by saving costs, generating revenue, or improving strategic positioning.

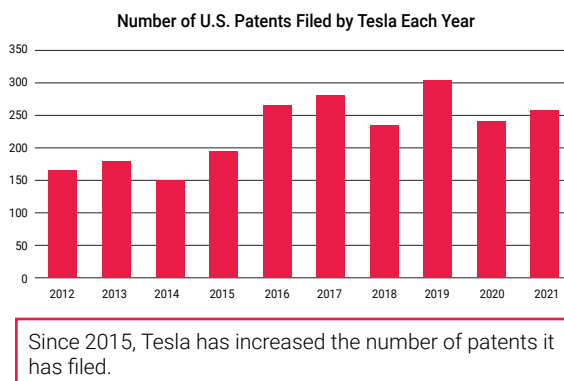
Lapse (or Prune): To not pay maintenance fees on a patent; the patent expires and is no longer enforceable. Granted patents have three maintenance fees due at 3.5, 7.5 and 11.5 years.

Lapse Rate: The number of patents lapsed as a percentage of the total number of renewals due.

Focus on Tesla: Musk shuns patents, but data show Tesla loading up

Tesla’s patent lapse strategy contradicts what co-founder and CEO Elon Musk routinely says publicly.

Musk [has been quoted](#) as saying “I don’t care about patents...” and “patents are for the weak,” and he does not believe in the benefits of holding such assets. [Tesla’s own website has a “Patent Pledge”](#) saying it will not initiate patent lawsuits against anyone who, in good faith, wants to use its technology. Musk likens the use of patents to “landmines in warfare,” stymying innovation. Little evidence from the automotive industry supports this view, with no significant current or historical litigation between the big OEMs.



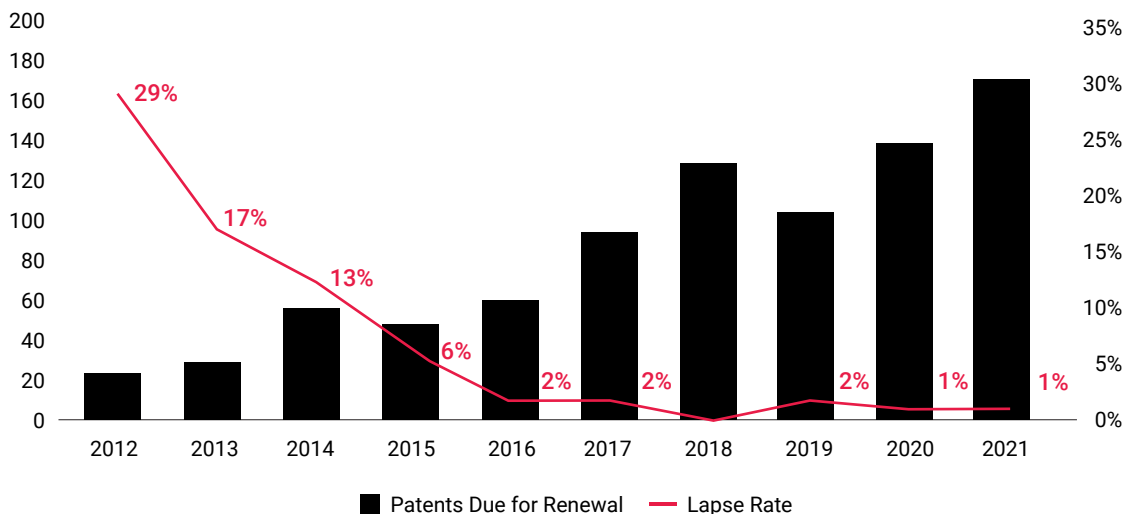
Despite Musk’s views, however, filing trend and lapse data show Tesla increasingly investing in patents. It continues to file at a consistent pace and retained patents at 98-100% annual retention rates from 2016 through 2021. Combined, these two strategies lead to a larger patent portfolio. Given Musk’s penchant for changing his mind, Tesla’s growing patent portfolio, and forecasts for electric vehicles (EV) to continue growing their market share, nobody knows just how long Musk will keep Tesla’s patent pledge in place or who will determine what using its technology “in good faith” means.

Diverging strategies

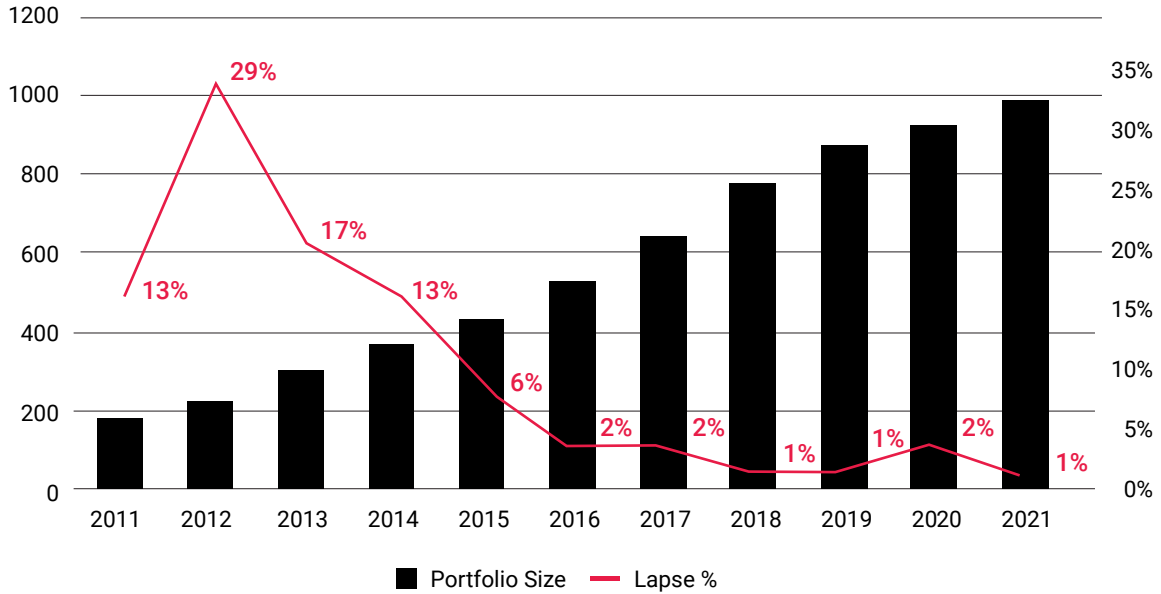
Taken together, Tesla’s patent lapse rate and the overall size of its patent portfolio illustrate a shifting strategy in which it retains nearly all patents as they come up for renewal, and Tesla continues to grow its war chest of IP “landmines,” as Musk calls them, to protect its innovations.

By contrast, combustion engine behemoth Ford also shifted strategies but in completely different ways. Ford’s massive patent portfolio had nearly 3,000 U.S. patents due for renewal in 2021 alone; that’s roughly three times as many U.S. patents as Tesla has in its entire portfolio.

Tesla U.S. Patent Lapse Rate - 2012-2021



Tesla U.S. Portfolio vs Lapse Rate



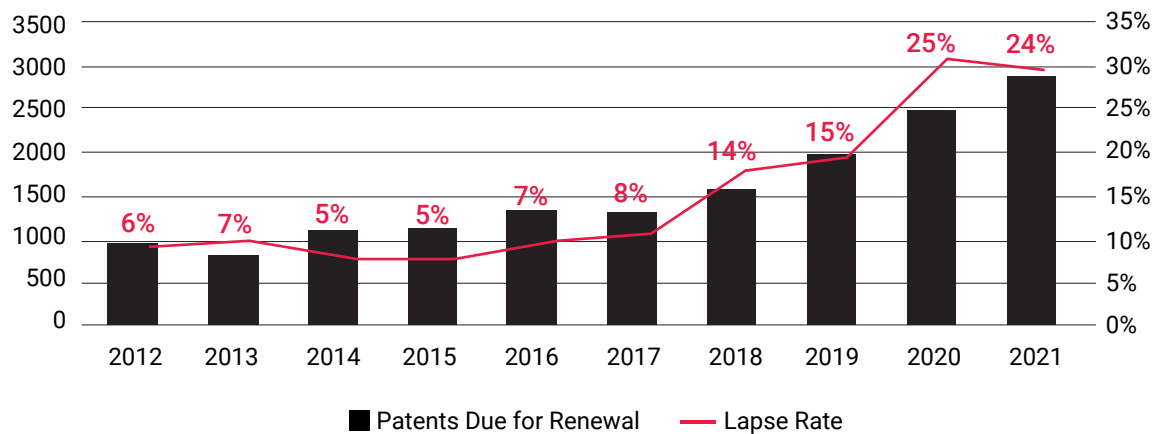
Still, Ford boosted its patent lapse rate significantly starting in 2016, jumping from a 5% lapse rate in 2015 to 25% in 2020, divesting its patents at a far greater rate.

The data show simultaneous, polar opposite shifts in patent lapse rates and strategies from Tesla and Ford, starting between 2015 and 2016. In Tesla's case, it reduced its patent lapse rate to just 2%, down from 6% the year prior and 29% in 2012. Ford, on the other hand, shifted strategies in the opposite direction, with its patent lapse rate

climbing from 5% in 2015 to 7% in 2016 and reaching 25% in 2020.

While the data cannot definitively explain the cause of these strategic shifts and any number of factors, internal and otherwise, may have led to Ford and Tesla adjusting their approach, the fact that these shifts happen in step with the signing of the Paris Climate Accord begs the question: did the debut of that agreement in December 2015 trigger these responses from these OEMs? Nearly 200 countries from around the world

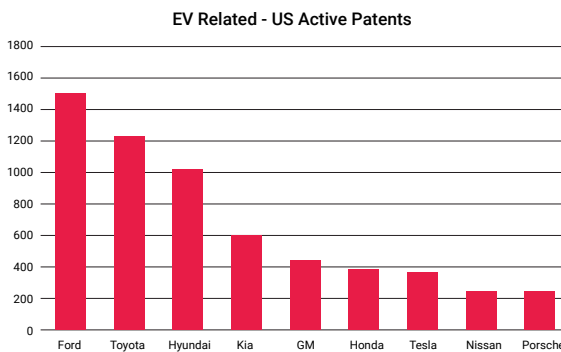
Ford US Lapse Rate - 2012-2021 - Avg. 14%



signed the agreement in 2015 and 2016, including the United States and China in 2016, who collectively represent nearly 40% of global emissions. It's possible the wide adoption of this agreement signaled an electric future for automotive OEMs and triggered Tesla to retain more of its EV patents and Ford to abandon its combustion engine patents at a greater rate.

Musk's influence on Tesla's portfolio

In Musk's defense, despite Tesla growing its patent portfolio much more aggressively as of late than it has in the past, its portfolio is still dwarfed by those of many mainstream and luxury OEMs, including Ford's approximately 18,000 active U.S. patents, which is not even the largest portfolio today among OEMs. The five largest patent portfolios among OEMs all contain more than 13,000 patents each, and even luxury brands like Jaguar and BMW maintain portfolios more than twice the size of Tesla's.



While Musk's anti-patent beliefs may run counter to Tesla's own portfolio management strategy as it has shifted toward growth and retention, the company undeniably maintains one of the smallest patent portfolios among OEMs by most measures. Even when considering only active U.S. patents specifically related to EVs, Ford and Toyota still hold more than three times the number held by Tesla. Hyundai, Kia, GM, and Honda all maintain larger portfolios of active EV-related U.S. patents than Tesla.

The potential of active patent portfolio management

Adopting Musk's pessimistic public statements about using patents as a business strategy could spell doom for many companies. In fact, more than half the monetary value of many Global 500 firms rests in their IP, and patents offer the ability to protect those investments made in research and development (R&D) and elsewhere. At the opposite end of the spectrum, retaining patents at high rates can be costly and wasteful for many businesses, and taking a more proactive approach to portfolio management and patent lapse rates can save businesses substantial sums and open up many new possibilities.

As the global economy sputters from economic headwinds and other factors, outdated cost reduction strategies must give way to value creation in a more holistic approach to efficiency and profitability. This is true throughout organizations and legal departments, and IP teams are no exception. Patent lapse and portfolio management strategies can help IP teams produce valuable outcomes for their organizations by improving strategic positioning, generating revenue, or saving costs.

A proactive approach can save a large automotive manufacturer \$2-\$4 million per year in renewal fees, which can be earmarked for hiring additional IP talent or other efforts to modernize the IP team.

Methodology

UnitedLex utilized two paid patent databases (Derwent Innovation & Relecura) to arrive at a confluence of data for patent portfolio sizes when extracting patent data for each OEM/Tier 1 supplier. A combination of CPC codes and keyword searches were used to generate training data for UnitedLex's proprietary artificial intelligence (AI) and machine learning (ML) model. The searches were performed using the above listed databases, extracted, and manually

verified by UnitedLex subject matter experts. UnitedLex utilized the training data to generate an AI/ML model capable of distinguishing between 14 top automotive-related tech categories and ran the portfolios through the AI/ML tool to classify all patents by tech category. UnitedLex ran the U.S. Grants for each company through its proprietary Patent Lapse Platform to generate visual aids and calculate lapse rates within seconds of ingesting the portfolios. The data were filtered, sorted, and analyzed over five-year and ten-year windows. Improvements or declines were calculated using comparison formulas to get percentage values. UnitedLex utilized a third paid database, RPX, for litigation data on cases filed within the last ten years.

While each volume of the UnitedLex Automotive U.S. Patent Lapse Analysis uncovers influential trends taking shape through the lens of patent data, our analysis does not specifically measure why improvements or changes have been made. It does not measure consumer sentiment or the effects of social and political change, the Paris Climate Accord for example. Only available patent filing, lapse and litigation data is considered.

UnitedLex helps

Throughout this series, UnitedLex will spotlight how data improve decision making for IP teams and add value to their teams and organizations. For over 15 years, UnitedLex has pushed the boundaries of legal innovation across all legal disciplines and within IP departments.

UnitedLex helps clients better understand their portfolios using data-driven insights to grow and build a competitive advantage. Using proprietary AI technology and extensive subject-matter expertise, UnitedLex helps convert these data-driven insights into increased revenue opportunities, reduced costs, and accelerated outcomes. For companies that must reduce costs and navigate shrinking budgets, UnitedLex can help.

About UnitedLex

UnitedLex is a data and professional services company delivering outcomes that create value for high-performing law firms and corporate legal departments in the areas of digital litigation, intellectual property, contracts, compliance, and legal operations.

Founded in 2006 with a mission to push the boundaries of legal innovation, we provide solutions that enable measurable performance improvement, risk mitigation, revenue gain, cost reduction and digital business synergy. Our team of 3,000+ legal, data and technology professionals supports our clients from operational centers around the world.

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