



The Costly Impact of Non-Strategic Patents

The UnitedLex Automotive U.S. Patent Lapse Analysis

VOLUME 2



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Executive summary

Over the next five years (2023-2027), Toyota faces a staggering \$96.7 million in maintenance fees due to the U.S. Patent Trade Office (USPTO) if it chooses to maintain all its U.S. patents, or about \$19 million per year. Renewing all U.S. patents over the next five years would cost GM and Ford roughly \$12 million per year and Hyundai and Honda approximately \$10 million annually.

As U.S. patent holdings continue to grow, so do the fees for these top automotive brands. Compared to previous five-year renewal costs, Ford and Toyota would each see their U.S. patent maintenance fees more than double, and Hyundai's would nearly triple. In the context of these figures, those faced by GM and Honda seem modest, with costs to maintain their current U.S. patent portfolios rising approximately 30% in the five years ahead compared to the last five.

In the UnitedLex Automotive U.S. Patent Lapse Analysis, vol. 1, we analyzed Tesla's evolving approach to patent lapse management and how its increasing patent retention rates run counter to public comments made by the company's high-profile leader. Patent lapse rate and strategic lapsing of patents offer automotive companies and their intellectual property (IP) departments powerful cost controls, but as Ford increasingly embraced strategic lapsing over the last five-to-seven years, Tesla began retaining patents at much higher rates, perhaps with a more electrified future in its sights.

In volume 2, we turn our focus to many of the world's largest automotive original equipment manufacturers (OEMs), whose massive U.S. patent portfolios dwarf that of Tesla and represent millions of dollars of shareholder value for the brands that most effectively manage these IP investments. As we profile unique patent lapse trends and portfolio management decisions of these top OEMs, Tokyo, Japan-based [Honda, the fifth largest car company in the world based on revenue](#), emerges as a leader in strategic patent lapsing. This comes as no surprise; Honda has received accolades over the last few years for its innovative approach to patent lapse analysis, deploying artificial intelligence (AI) to save nearly \$3 million in renewal fees annually.

Completed with our own proprietary tool, the UnitedLex Lapse Platform, this analysis presents a detailed look into past U.S. patent portfolio management strategies of some of the world's largest automotive brands and suggests ways to better manage these skyrocketing costs. Strategic patent lapse analyses not only offer a roadmap to cost reduction, they also help identify revenue-generating opportunities to offset these growing costs by selling, licensing, or even litigating patents.

Throughout the series, alongside lapse rates of automotive brands, we also analyze filing trends and litigation data to highlight opportunities for improvement and counterintuitive IP management trends taking shape throughout the industry. Later, to complete the series, we will present a more detailed analysis of the U.S. automotive industry through the lens of patent data.

Budget boosters

Strategic lapsing of a company's patent portfolio is among the greatest cost-saving levers available to 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.

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 (Gates 1, 2, and 3).

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

Honda dominates the "Big 5" U.S. patent portfolios

Volkswagen and Toyota have spent the last five years trading places as they vie to be the world's largest automotive manufacturer [based on vehicles sold](#), but when it comes to patent portfolio size or renewal costs, Volkswagen does not even make the top five list with its current portfolio containing approximately 6,400 U.S. patents. Based on UnitedLex's analysis of patent renewal costs over the last 10 years (2012-2021), the Big 5 brands include Honda, Toyota, General Motors (GM), Ford, and Hyundai.

Big 5: The top five automotive brands ranked by U.S. patent renewal costs due over the past 10 years. The Big 5 includes Honda, Toyota, GM, Ford, and Hyundai.

Renewal Cost Analysis (2012 to 2021)

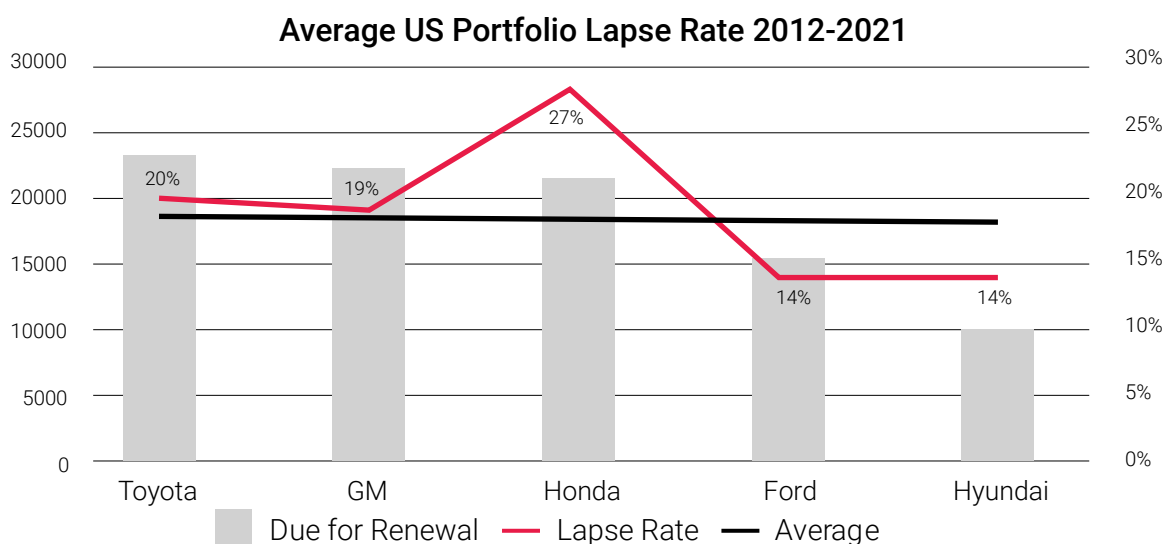
COMPANY NAME	RENEWAL COST DUE	COST SAVED	COST SPENT	Excluding 2022 UPCOMING 5YR COST
Honda	\$83,385,020	\$28,117,600	\$55,267,420	\$56,089,260
Toyota	\$76,265,460	\$19,375,620	\$56,889,840	\$96,689,360
GM	\$73,965,980	\$18,097,080	\$55,868,900	\$66,227,740
Ford	\$55,599,180	\$9,825,640	\$45,773,540	\$69,196,780
Hyundai	\$35,263,400	\$7,737,460	\$27,525,940	\$54,417,280

As the table on page 3 illustrates, Honda's strategic patent lapsing helped the company save more than \$28 million in U.S. patent portfolio maintenance fees over the last decade, reducing its renewal costs due from \$83 million to \$55 million in actual costs incurred over that period. The following chart illustrates Honda's greater willingness to strategically lapse patents to drive those savings in its IP investment.

Honda's historical embrace of strategic patent lapsing has earned it residual benefits as we look forward to the next five years.

to keep costs in check. Automotive brands don't need to renew every U.S. patent in their portfolios to secure the defensive benefits they desire. When managed too defensively, patent portfolio costs balloon, and financial successes like those achieved by Honda become impossible.

For many, a more optimized defensive approach will suffice, in which they retain the best portion of their portfolios and maintain an equally effective defensive position. This strategy empowers manufacturers to increase their lapse rate or transact on



While costs for many are set to grow substantially, Honda has positioned its upcoming costs over the next five years to be only slightly higher than what it spent over the last decade. The other Big 5 brands, however, now face staggering increases in looming costs. If Honda were to maintain its lapse rate going forward, it could expect to save \$18.5 million over the next five years (2023-2027) or more than \$3 million annually.

Maintaining protections and improving business outcomes

Automotive brands often choose to retain patents for defensive purposes, to protect their interests and ward off litigation, but similar to homeowners' insurance, protection levels should align with asset values

patents due for renewals via sales or licensing to help offset the rising costs of those they retain and realize millions of dollars in shareholder value.

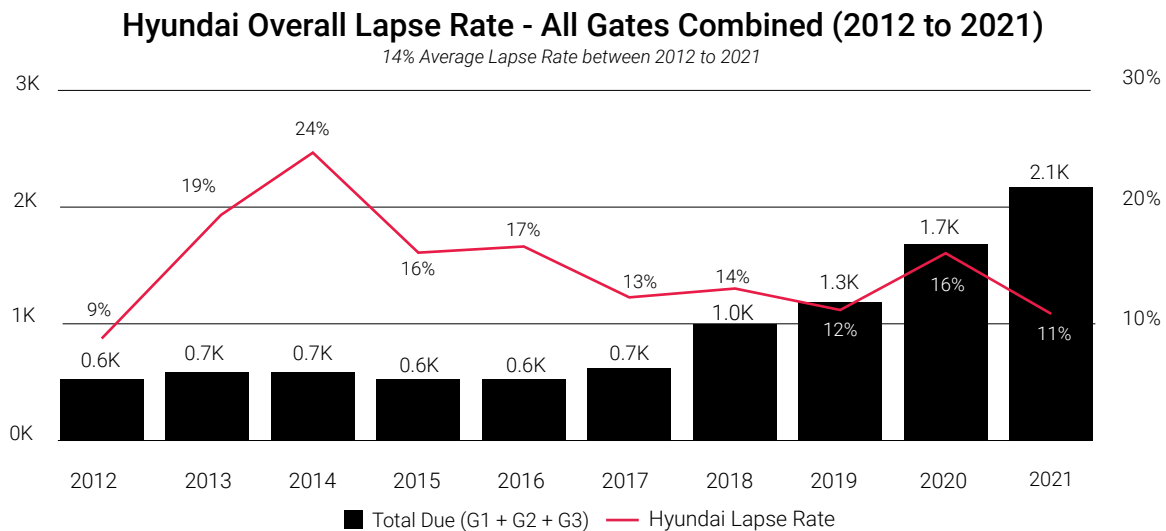
Is Hyundai asleep at the lapse wheel?

[The tenth largest car company in the world based on revenue](#), Seoul, South Korea-based Hyundai appears to be the Big 5's worst all-around performer when it comes to strategic patent lapsing. The company could do far more to increase the fiscal success of its U.S. patent portfolio and IP efforts to deliver tangible value to its shareholders.

With an average lapse rate of 14%, Hyundai performs below the industry average and has been lapsing at a flat to slightly

decreased rate over the last decade, missing out on opportunities to save shareholders money.

While Toyota has spent approximately \$36 million in fees over the last five years (2017-2021) to maintain its U.S. patents,



In the last five years alone (2017-2021), with a patent lapse rate of just 14%, Hyundai spent \$16 million in maintenance fees to maintain its U.S. patents. As the coming tsunami of patent maintenance fees approaches, however, Hyundai faces more than \$54 million in total renewal costs due over the next five years, more than a 3x increase. If Hyundai maintains a constant patent lapse rate moving forward, this represents an approximately \$3 million to \$8.5 million increase in spending per year.

For this growing automotive brand, patent lapse and transaction strategies provide logical next steps to not only protect the company legally but also to protect shareholders' investments. A brief investigation turned up no publicly available information from Hyundai about any efforts to license or otherwise generate revenue from its patent portfolio.

Stakes are rising for Toyota

Toyota's 20% lapse rate over the last decade is above the industry average but has held steady when comparing 2012-2016 to 2017-2021. Still, the company has missed opportunities to save on costs and drive shareholder value.

the company faces roughly \$96 million to maintain its entire U.S. patent portfolio over the next five years. This represents a more than 2x increase from approximately \$7 million to approximately \$14 million per year and the biggest renewal amount facing any automotive brand doing business in the United States.

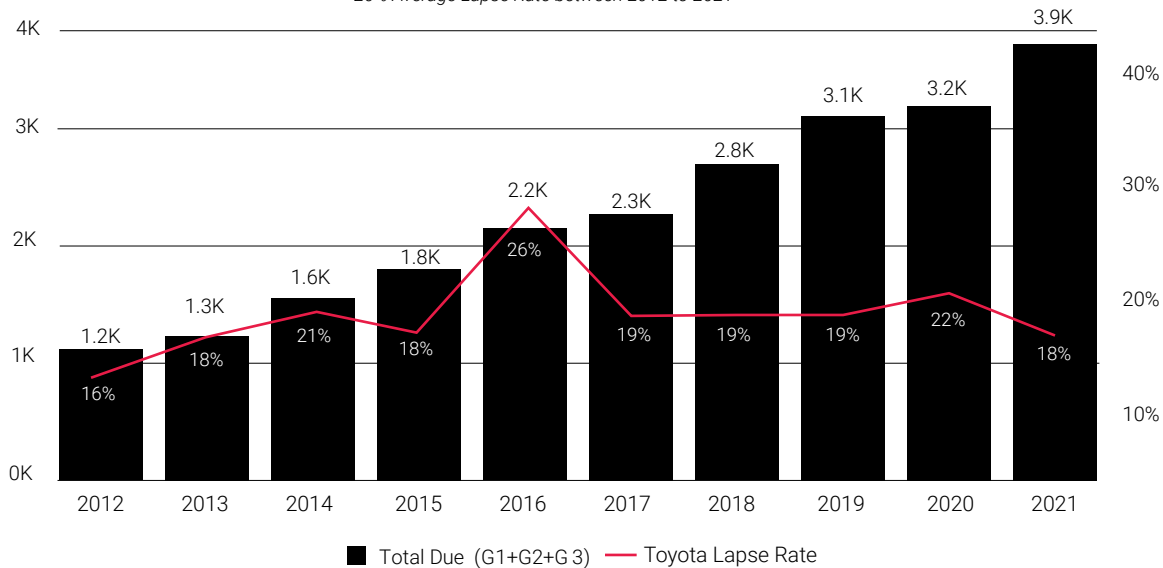
Strategies to boost patent lapsing and transactions offer logical next steps to rein in these costs and protect shareholder value. By retaining the best of its U.S. patents, Toyota can maintain an equally effective defensive position while increasing its lapse rate or transacting on patents due for renewals to drive superior outcomes for the business and its IP department.

Will a mirage of protection justify a tsunami of costs?

The rising costs of old-fashioned patent portfolio management strategies are rapidly approaching, and holders of large U.S. automotive patent portfolios are unequally prepared. To date, only Honda has been publicly credited with leveraging AI to wrangle its U.S. patent portfolio, and the associated savings and shareholder value shone through in this analysis. Others need

Toyota Overall Lapse Rate - All Gates Combined (2012 to 2021)

20% Average Lapse Rate between 2012 to 2021



to follow suit to shed their least valuable patents and protect shareholder value.

While many OEMs point to robust patent portfolios as a valuable tool to ward off costly litigation, little evidence exists to support this argument. Litigation among OEMs is not commonplace, and this is well-known in the industry.

Analyzing litigation data for Hyundai, which faces the largest increase in costs over the next five years, suggests only two cases of litigation have been brought against Hyundai by operating entities within the last five years, and both were related to design patents. Similarly, Honda appears to have only been involved in one litigation with an operating entity over the last five years, and Honda was on the offensive, asserting nine of its patents related to wheel design. Since maintaining a large patent portfolio does not protect an automotive manufacturer from non-operating entities, the defensive benefits of comprehensively maintaining patents appears to be little more than a fallacy.

The potential of active patent portfolio management

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. Still, 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 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 improves 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 its proprietary AI technology, the UnitedLex Lapse Platform, 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.

For more information, please visit unitedlex.com



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